

# **3M**

## **3M-Matic™**

### **800rf** Type 39800

# **Automatic Random Case Sealer with AccuGlide™ II Taping Heads**

## **Service Manual**



### To Our Customers:

**This is the 3M-Matic™/AccuGlide™/Scotch™ brand equipment you ordered. It has been set up and tested in the factory with “Scotch” brand tapes. If technical assistance or replacement parts are needed, call or Fax the appropriate number listed below.**

### Technical Assistance

3M-Match™ Helpline – 1-800/328 1390. Please provide the customer support coordinator with the machine number, machine type/model and serial number. If you have a technical question that does not require an immediate response, you may Fax it to 715/381 0248.

### Replacement Parts

Order parts by part number, part description and quantity required. Also include machine name, number and type. A parts order form is provided at the end of Section 7 of this manual, Illustrated Parts Breakdown.

**3M/Tape Dispenser Parts  
241 Venture Drive  
Amery, WI 54001-1325**

**1-800/344 9883  
FAX# 715/268 8153**

**Minimum billing on parts orders will be \$25.00. Replacement part prices available on request.**

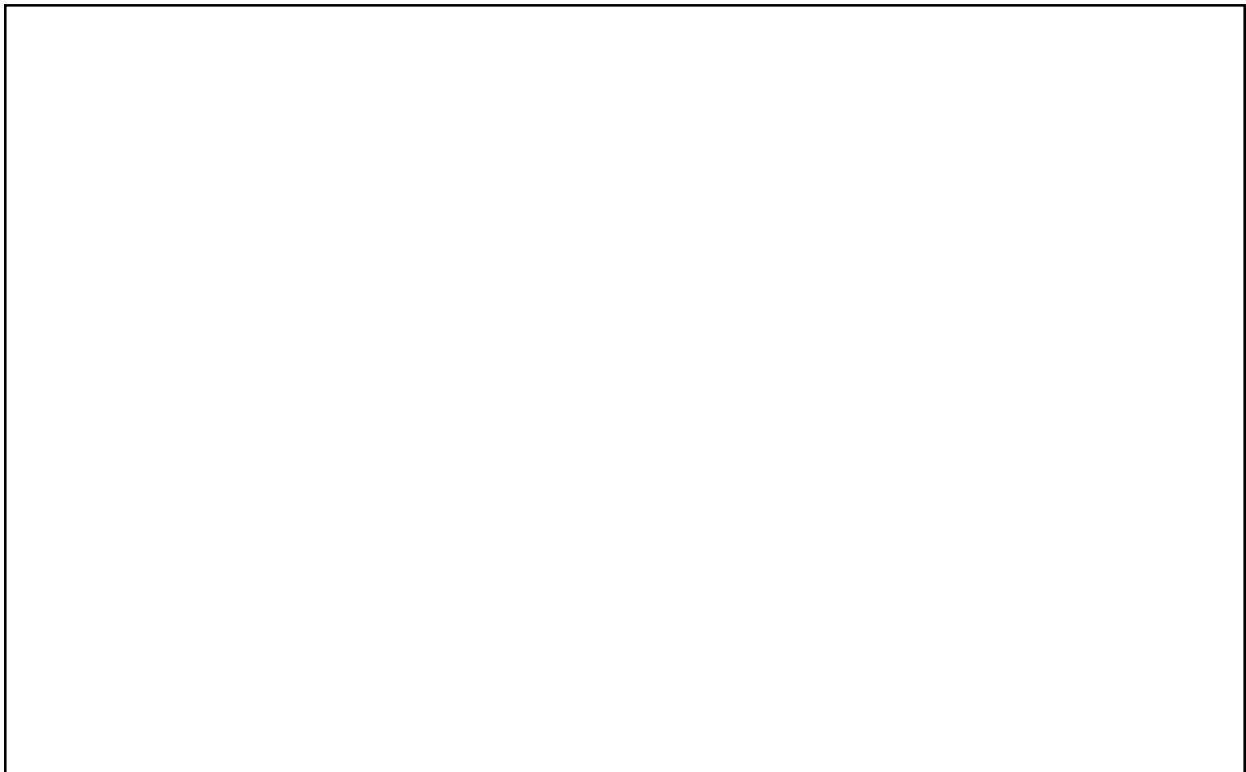
**\$10.00 restocking charge per invoice on returned parts.**

Note: Outside the U.S., contact the local 3M subsidiary for parts ordering information.

## To Our Customers:

This is the 3M-Matic™/AccuGlide™/Scotch™ brand equipment you ordered. It has been set up and tested in the factory with “Scotch” brand tapes. If any problems occur when operating this equipment, and you desire a service call, or phone consultation, call, write, or Fax the appropriate number listed below.

### SERVICE AND PARTS AVAILABLE DIRECT FROM:



Order parts by part number, part description and quantity required. Also include machine name, number and type.

**3M-Matic™ 800rf Service Manual  
Revision History**

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**Appendix A. PLC Addendum**

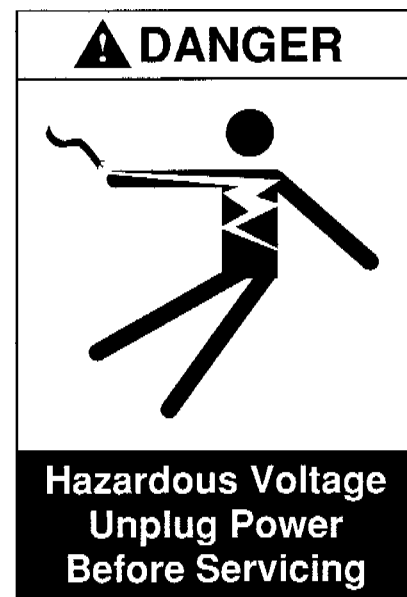
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**Warning Label**

The “WARNING – Sharp Knife” label, shown in Figure 1, is attached to the orange cut-off knife guard on both taping heads. The label warns the operator and service personnel of the very sharp knife located behind the guard and to keep hands out of this area except for tape loading and servicing the taping heads.



800rf-79A

**Figure 1. Warning Label**

800rf-84A

**Figure 2. Danger Label****Danger Label**

The “DANGER – Hazardous Voltage Unplug Power Before Servicing” label, shown in Figure 2, is attached to the front of the Electrical Control Panel, at the front of the machine. When power is on, opening the panel door allows access to +24 VDC and 220 VAC.

**Tape Threading Label**

The Tape Threading Label, shown in Figure 3, is attached to the left side of both the upper and lower taping heads. This label provides a convenient tape threading diagram. More detailed tape loading and threading information is provided in this manual in Section 2, Installation.

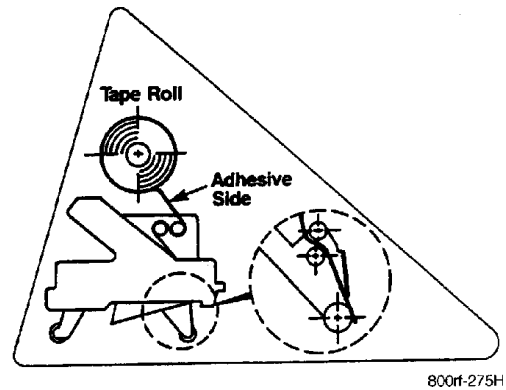


Figure 3. Tape Threading Label

**STOP Switches**

The Model 800rf Type 39800 Case Sealer is equipped with three STOP switches. Their locations are shown in Figure 4. Pressing either of the red E-Stop switches stops the machine, removing electrical power and air pressure from the case sealer. To restart the machine, you must turn and release the E-Stop switch and then press the RESET button and the START button on the Electrical Control Panel.

Pressing the STOP button on the Electrical Control Panel stops the machine and does not remove power from the controller. To restart the machine, you must press the RESET button and then the START button.

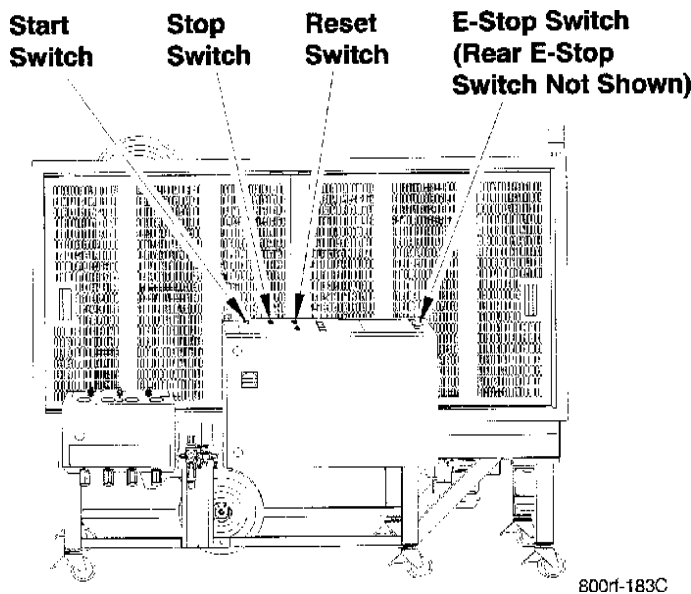


Figure 4. STOP Switch Locations

**Equipment Warranty and Limited Remedy: THE FOLLOWING WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING, A CUSTOMER OR USAGE OF TRADE:**

3M sells its **3M-Matic™ 800rf Fully Automatic Random Case Sealer** with the following warranties:

1. The Taping Head knife blades, springs and rollers will be free from all defects for ninety (90) days after delivery.
2. All other Taping Head parts will be free from all defects for three (3) years after delivery.
3. All other parts will be free from all defects for ninety (90) days after delivery.

If any part is proved to be defective within its warranty period, then the exclusive remedy and 3M's and seller's sole obligation shall be, at 3M's option, to repair or replace the part, provided the defective part is returned immediately to 3M's factory or an authorized service station designated by 3M. A part will be presumed to have become defective after its warranty period unless the part is received or 3M is notified of the problem no later than five (5) calendar days after the warranty period. If 3M is unable to repair or replace the part within a reasonable time, then 3M at its option, will replace the equipment or refund the purchase price. 3M shall have no obligation to provide or pay for the labor required to install the repaired or replacement part. 3M shall have no obligation to repair or replace: (1) those parts failing due to operation misuse, carelessness or due to any accidental cause other than equipment failure, or (2) parts failing due to non-lubrication, inadequate cleaning, improper operating environment, improper utilities or operator error.

**Limitation of Liability:** 3M and seller shall not be liable for direct, indirect, special, incidental or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability or any other legal theory.

The foregoing Equipment Warranty and Limitation of Liability may be changed only by a written agreement signed by authorized officers of 3M and seller.

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**1. Description and Specifications**

**1-1. Intended Use**

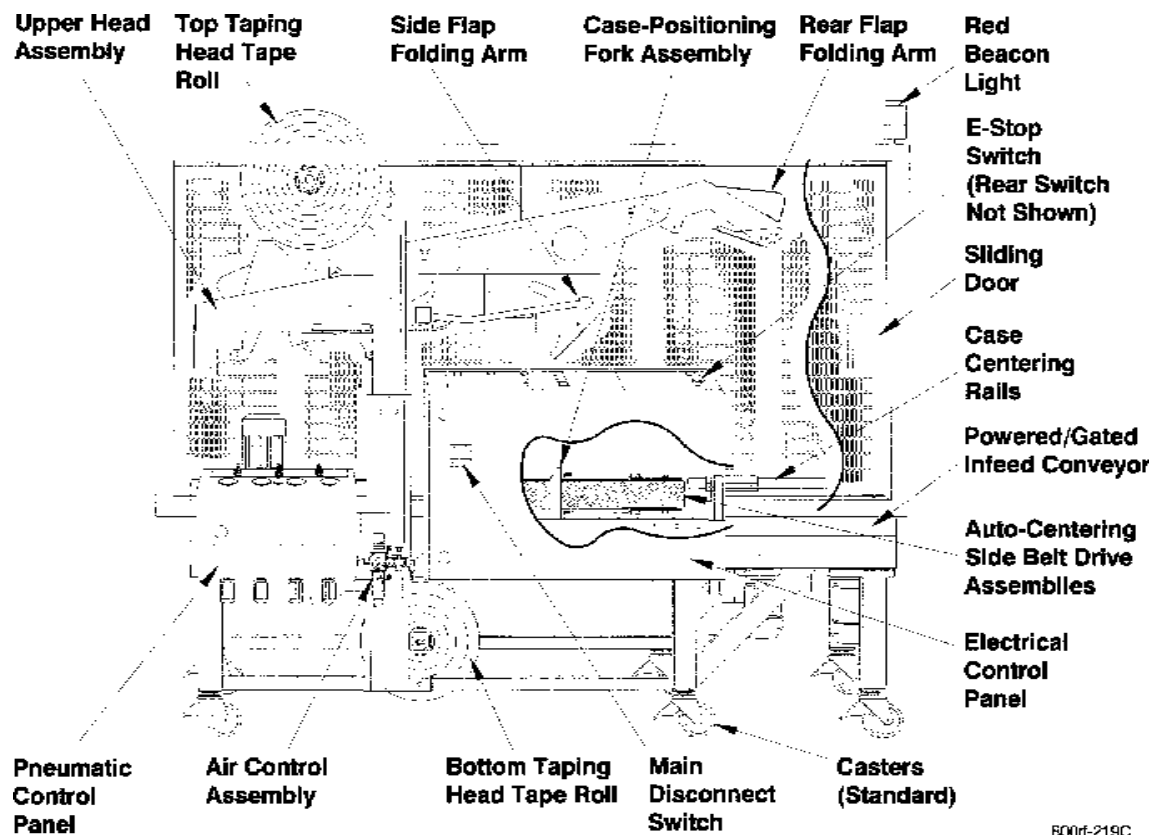
The 3M-Matic™ Model 800rf Type 39800 Automatic Random Case Sealer with AccuGlide™ II Taping Heads is designed to accept filled, regular slotted containers from an existing conveyor, fold the top flaps, and apply a “C” clip of Scotch™ brand Pressure-Sensitive Film Box Sealing Tape to the top and bottom center seams. Two side-drive belt assemblies convey the cases through the machine.

The 800rf Case Sealer is to be used with infeed and exit conveyors supplied by the customer. Do not attempt to run the case sealer without infeed and exit conveyors in place.

✓ **Note**

In this manual, the end of the case sealer that accepts cases for taping is the infeed end. The end of the case sealer where the taped cases leave is the exit end. The side containing the Electrical Control Panel and the Pneumatic Control Panel is the front or left side of the machine, and the opposite side is the back or right side of the machine.

Figure 1-1 shows the 800rf Case Sealer with callouts to identify its major components.



**Figure 1-1. 3M-Matic™ 800rf Case Sealer**

“3M-Matic,” “AccuGlide,” and “Scotch” are trademarks of 3M, St. Paul, MN 55144-1000

### 1-2. Description

The 800rf Case Sealer is controlled from two operator control panels located on the front left side of the case sealer. These control panels (Electrical Control Panel and Pneumatic Control Panel) have the most-used controls within easy reach of the operator. The case sealer is microprocessor-based and firmware controlled to maintain maximum and precise control over all operations within the case sealer.

The case sealer may be operated in Random, Fixed, or Bypass mode. A selector switch is located on the top of the Electrical Control Panel.

#### Caution

**Never change operating modes while a box is in the case sealer. Change modes only after a box exits the case sealer and before the next box enters the case sealer.**

- In Random mode, the case sealer automatically adjusts itself for a wide range of case sizes, providing a tape seal on the top and bottom of the cartons. Random mode is considered the standard operating mode.
- In Fixed mode, the case sealer runs multiple cartons of the same (fixed) size, providing a tape seal on the top and bottom of the cartons.
- In Bypass mode, the case sealer passes certain containers through the machine, providing a tape seal only on the bottom of the containers. The top of these containers is not sealed.

**1-1. Specifications****Tape:**

3M brand pressure-sensitive film box sealing tapes.

**Tape Width:**

Standard 3M-Matic™ 800rf Case Sealer.

This model offers tape widths from 1-1/2 inches [36 millimeters] minimum to 2 inches [48 millimeters] maximum.

3M-Matic™ 800rf-3 Case Sealer.

This model offers 3-inch wide upper and lower AccuGlide™ II Taping Heads for tape widths from 2 inches [48 millimeters] to 3 inches [72 millimeters].

**Tape Roll Diameter:**

Up to 15-1/2 inches [394 millimeters] maximum, on a 3-inch [76.2 millimeters] diameter core.

**Box Dimensions:**

Length: 8 inches [203 millimeters] minimum, 24 inches [610 millimeters] maximum.

Width: 5-1/2 inches [140 millimeters] minimum, 20 inches [508 millimeters] maximum.

Height: 6 inches [152 millimeters] minimum, 20 inches [508 millimeters] maximum.

**Box Weight Capacity:** (filled)

65 pounds [29 kilograms] maximum; minimum must be sufficient to hold case on the conveyor bed with bottom flaps flat.

**Box Type:**

Box board, 125 to 275 PSI bursting test, single wall A, B, or C flute.

**✓ Note**

The case sealer accommodates most boxes within the size range identified above. However, if the ratio of box length (in the taping direction) to box height is 0.6 or less, several boxes should be test-run to ensure proper machine performance.

DETERMINE THE BOX LIMITATIONS BY COMPLETING THIS FORMULA:

$$\frac{\text{Box (tape) Length}}{\text{Box Height}} > 0.6$$

**Operating Conditions:**

Use in dry, relatively clean environments at 40°F to 120°F [5°C to 49°C] with clean, dry boxes. The machine should not be washed down or subjected to conditions causing moisture condensation on components.

**Machine Specifications:**

Length: 86-3/4 inches [2.20 meters].

Width: 57 inches [1.45 meters].

Height: 74 inches [1.88 meters] minimum with casters to 80 inches [2.03 meters] maximum with casters.

Weight: Unit uncrated, approximately 1130 pounds [513 kilograms].  
Unit crated, approximately 1200 pounds [544 kilograms].

Case sealer bed height: Adjustable up from factory-set height of 25-7/8 inches [657 millimeters] to 32 inches [815 millimeters] with casters.

**Power Requirements:**

Electrical: 208 to 240 VAC, 50/60 Hz, 5.5 Amps, 3-phase.

Pneumatic: Machine requires 75 – 140 PSIG [5.2 – 9.5 BAR] 7.0 SCFM [11.89 m³/h 21°C, 101 kPa] at the regulator, maximum at maximum cycle rate.

**The optimum operating set point on the gauge is 95 – 100 PSIG.**

**Infeed Conveyor Speed:**

**The customer's infeed conveyor box delivery speed must not exceed 60 feet/minute.**

**⚠ Caution**

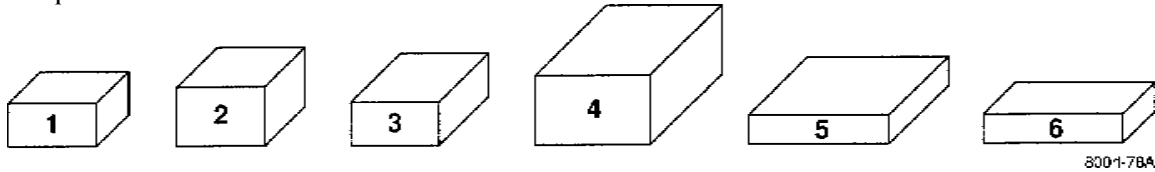
**Do not connect a lubricator or lubricated air to this machine. This machine has a non-lubricated air circuit.**

**1-1. Case Sealing Rate Approximation Formula**

To determine the case sealing rate for your application:

1. Obtain a representative sample of boxes in the proportion that will be run through the machine. Use as many boxes as necessary to get an accurate sample.

Example:



1. Determine (add up) the total length of all boxes.
2. Determine (add up) the total width of all boxes.
3. Determine (add up) the total height of all boxes.

Number of boxes: \_\_\_\_\_

Total length (inches): \_\_\_\_\_

Total width (inches): \_\_\_\_\_

Total height (inches): \_\_\_\_\_

4. Divide the dimension totals by the number of boxes — to determine average length, width, and height.

Total length \_\_\_\_\_ = \_\_\_\_\_ Average length  
 Number of boxes

Total width \_\_\_\_\_ = \_\_\_\_\_ Average width  
 Number of boxes

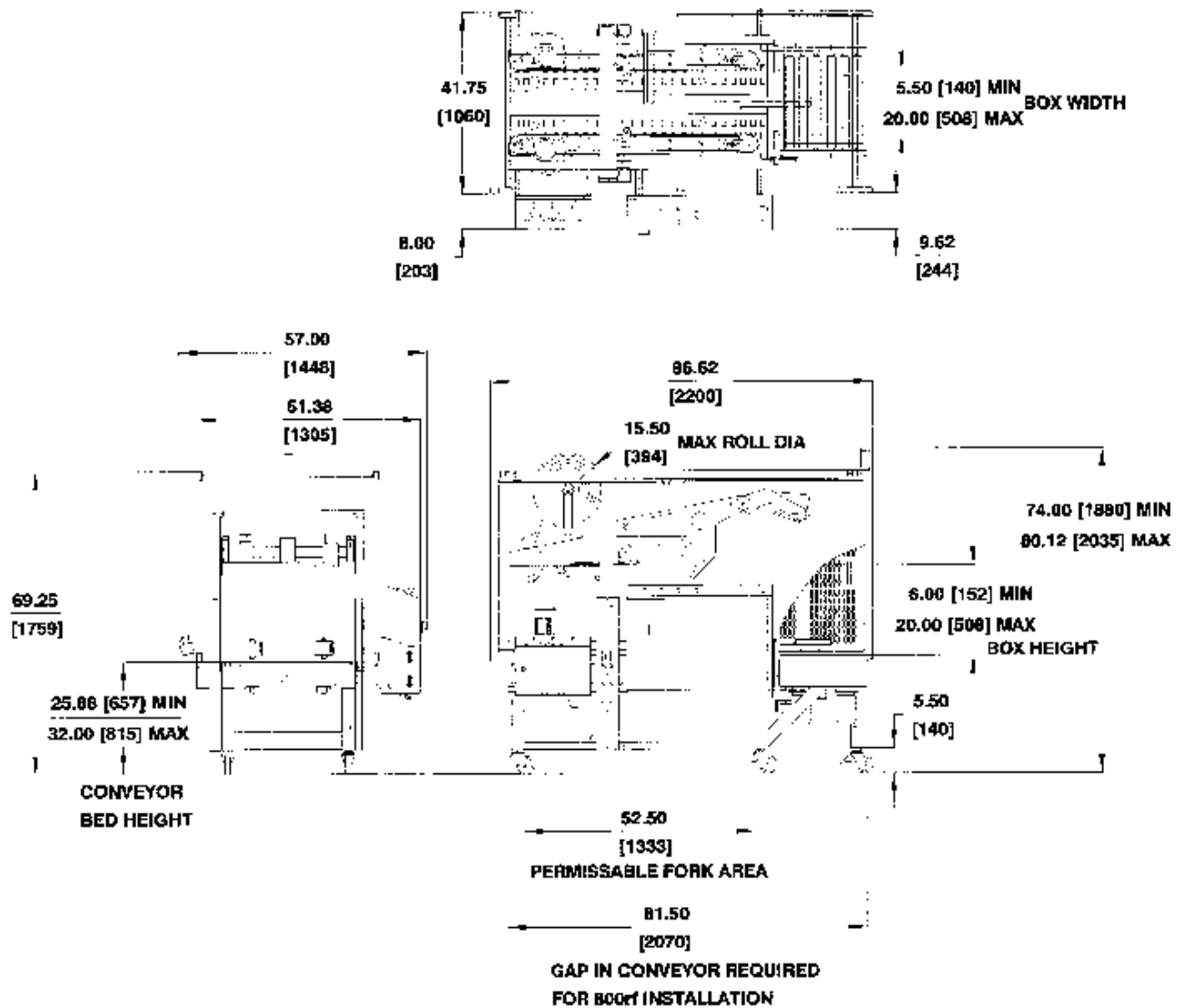
Total height \_\_\_\_\_ = \_\_\_\_\_ Average height  
 Number of boxes

***800rf Case Sealing Rate (cases per minute)***

$$Rate = 5.97 + (0.42 \times ave. length) - (1.06 \times ave. width) + (0.72 \times ave. height)$$

**1-1. Machine Dimensions**

Figure 1-2 shows machine dimensions for the 800rf Case Sealer. The dimensions are given in both inches and millimeters. For example, 20.00 inches [508 millimeters] is shown as 20.00 [508].



**Figure 1-2. Machine Dimensions**

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**2-1. General**

The following instructions are presented in the order recommended for installing and setting up the 800rf Case Sealer, as well as for learning the operating functions and adjustments. Following these instructions step-by-step results in a thorough understanding of the case sealer and its installation in a production line that best uses the many features of the case sealer. Refer to Figure 2-1 for nomenclature.

Uncrating and setting up the case sealer consists of four steps:

1. Uncrating the equipment.
2. Assembling the case sealer as described in this section.
3. Providing the electrical and pneumatic connections.
4. Installation of the case sealer in a production line.

Once you decide on a schedule to accomplish these steps, contact:

3M Packaging Systems Division  
 Customer Support Center  
 Phone 1-800-328-1390

A 3M technician will be sent to your site to perform a final checkout inspection.

✓ **Note**

We recommend that you do not operate the case sealer in a production situation until the final checkout inspection is complete. For the final checkout inspection, have a sufficient supply of cases in representative sizes and weights to check the case sealer under normal operating conditions.

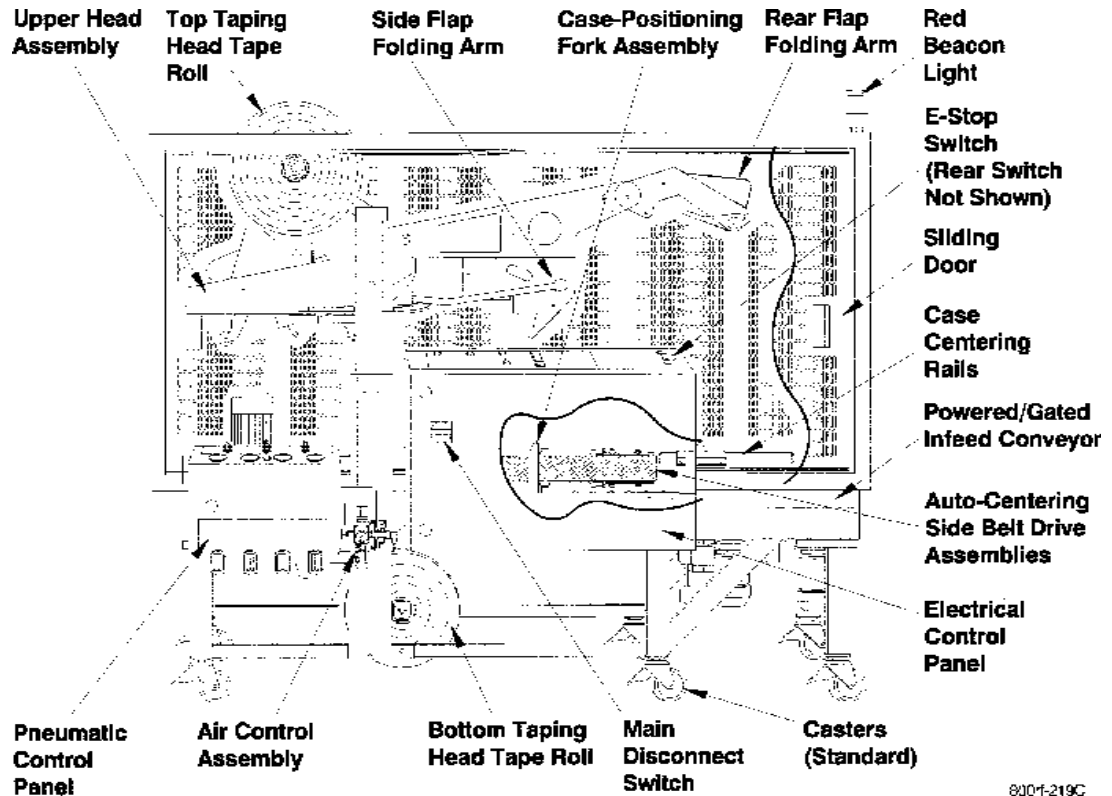


Figure 2-1. 3M-Matic™ 800rf Case Sealer

## 2-2. Unpacking

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### ✓ Note

It is the responsibility of the customer to uncrate the case sealer. Lifting equipment (forklift, overhead crane, etc.) is necessary to lift the case sealer from its pallet.

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The case sealer is delivered in one crate.

Perform the following inspection upon receipt of the case sealer.

1. Inspect the shipping crate for damage that could indicate internal damage to the case sealer.

Report any damage, missing parts, or other problems to:

3M Packaging Systems Division  
Customer Support Center  
Phone 1-800-328-1390

2. Dismantle the crate.
3. Inspect the case sealer and uninstalled components for damage or missing parts. The crate should also contain the following:
  - One latching emergency stop switch with bracket (electrically connected, but not mounted in place)
  - One warning beacon with bracket (electrically connected, but not mounted in place)

- One tool box containing:

- 1 wrench, tube, 17 mm
- 1 wrench, box/open, 13 mm & 10 mm
- 1 wrench, box/open, 8 mm & 7 mm
- 1 wrench, open end, 25 mm
- 1 wrench, hex key, 3 mm
- 1 wrench, hex key, 4 mm
- 1 wrench, hex key, 5 mm
- 1 wrench, hex key, 6 mm
- 1 spring, main upper (78-8070-1274-1)
- 1 spring, main lower (78-8070-1273-3)
- 4 springs, cutter (78-8052-6602-6)
- 2 blades, cutter (78-8017-9173-8)
- 1 tool, tape threading (78-8076-4726-4)

4. Report any damage, missing parts, or other problems to:

3M Packaging Systems Division  
Customer Support Center  
Phone 1-800-328-1390

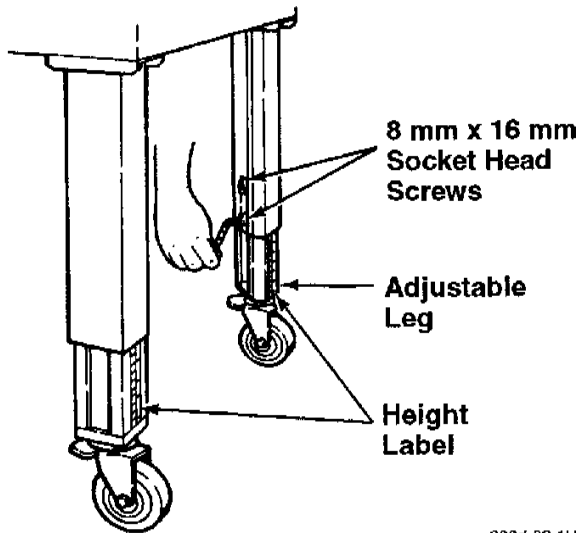
5. Move the case sealer to the point of use, but do not place it into production until after the 3M technician completes the checkout inspection.

## 2-3. Setup Procedure

### 2-3-1. Case Sealer Bed Height

The legs on the case sealer can be adjusted to obtain different bed heights from the factory set-point. The bed height can be set from 25-7/8 inches [657 mm] minimum through 32 inches [815 mm] maximum. Set the bed height as follows:

1. Block up the case sealer frame to allow adequate leg adjustment.
2. Using a 6 mm hex key wrench, loosen, but do not remove, two M8 x 16 mm socket-head cap screws in one leg. Refer to Figure 2-2.



800rf-02-1H

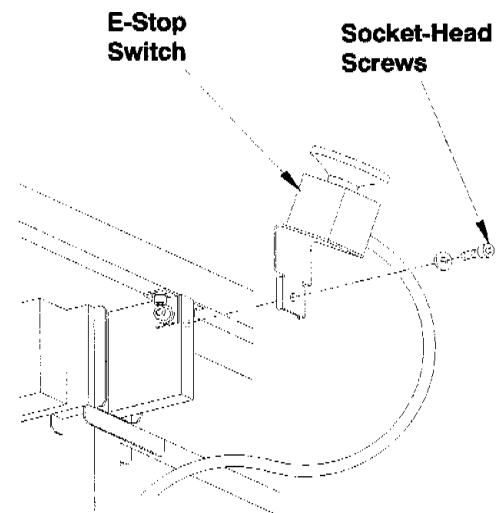
Figure 2-2. Bed Height Adjustment

3. Using the height label as a guide, adjust the leg length to the desired conveyor bed height. Re-tighten the two screws to secure the leg.
4. Adjust the five remaining legs in the same way.

### 2-3-2. Rear Emergency Stop Switch Installation

A latching Emergency Stop (E-Stop) switch is electrically connected to the case sealer, but not mounted to the machine. Install this E-Stop switch on the rear side of the case sealer.

1. Remove the protective wrap from the E-Stop switch and bracket assembly.
2. Secure the E-Stop switch bracket to the rear sliding door support bracket with the socket-head screw provided. Refer to Figure 2-3.



800rf-216C

Figure 2-3. Rear E-Stop Switch Installation

**2-3-3. Warning Beacon Installation**

A red warning beacon is electrically connected to the case sealer, but not mounted to the machine. Install this warning beacon on top of the frame support member to which it is connected.

1. Remove the protective wrap from the warning beacon and L-bracket assembly.
2. Remove the top hex-head screw from the frame support member. Refer to Figure 2-4.
3. Secure the warning beacon L-bracket to the frame support member with the screw just removed.

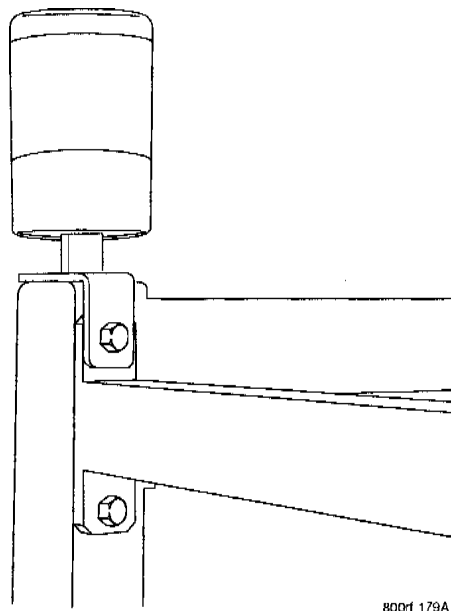


Figure 2-4. Warning Beacon Installation

**2-3-4. Pneumatic Connection**

The case sealer requires a compressed air supply of 75 – 140 PSIG [5.2 – 9.5BAR] 7.0 SCFM [11.89m<sup>3</sup>/h 21°C, 101kPa] maximum at maximum cycle rate. The optimum operating set-point on the gauge is 95 – 100 PSIG. As shown in Figure 2-5, an On/Off Valve, Main Air Pressure Regulator, and Filter are provided to service the air supply.

Connect the air supply line to the Main Air Pressure Regulator On/Off Valve.

✓ **Note**

The air supply On/Off Valve has provisions for lockout/tagout according to plant regulations.

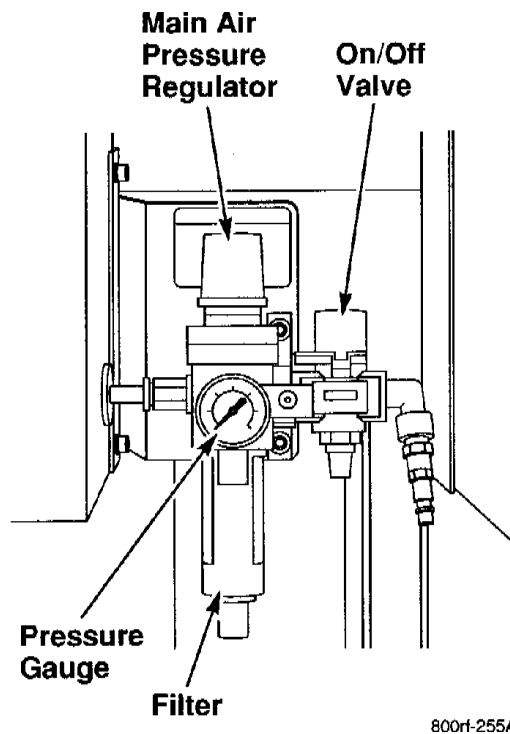


Figure 2-5. Air Supply Components

### 2-3-5. Air Pressure Indicator

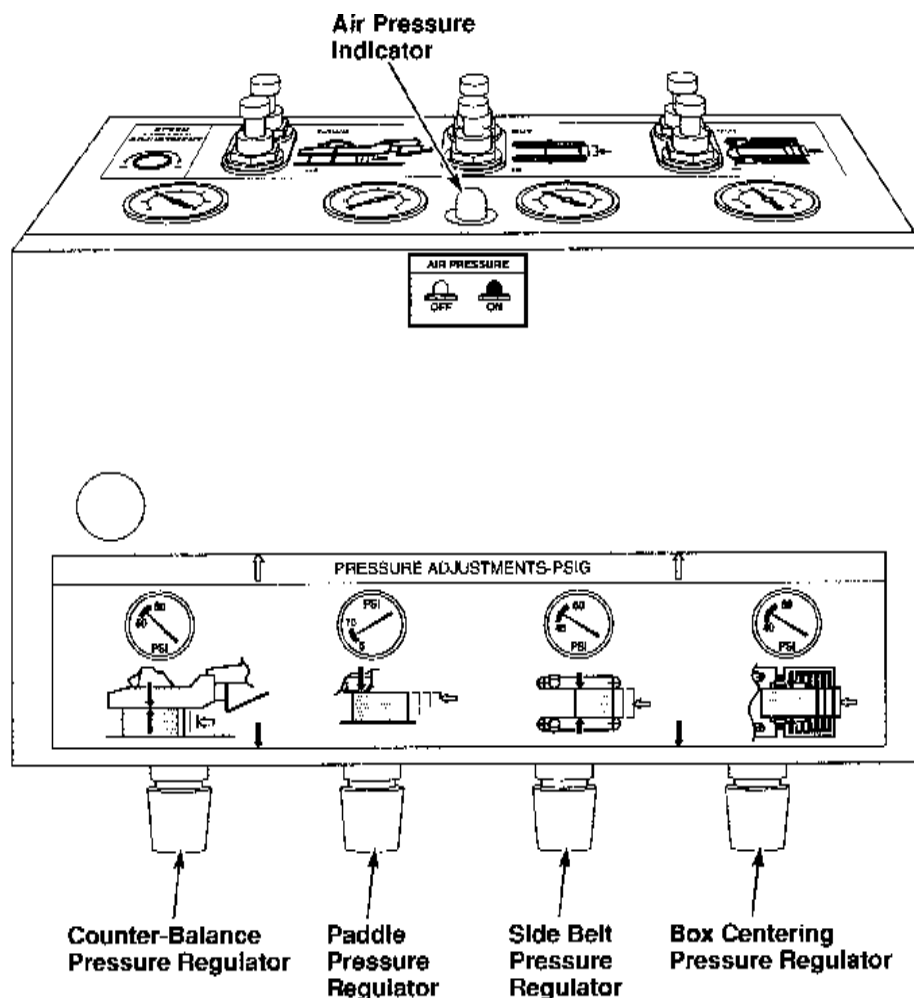
The Pneumatic Control Panel (Figure 2-6) is equipped with an Air Pressure Indicator to show, in red, when the air circuit is energized. The Air Pressure Indicator is located in the top center of the control panel.

### 2-3-6. Air Pressure Regulators

There are four air pressure regulator control knobs located on the underside of the Pneumatic Control Panel. Their corresponding gauges are located across the top of the Pneumatic Control Panel. Refer to Figure 2-6.

Refer to the Adjustments section of this manual for the recommended set points for each regulator (Counter-Balance Pressure Regulator, Paddle Pressure Regulator, Side Belt Pressure Regulator, and Box Centering Pressure Regulator). Also refer to the label located on the lower front portion of the Pneumatic Control Panel.

To adjust any of these air pressure regulators, turn its control knob clockwise (CW) to increase pressure and counterclockwise (CCW) to decrease pressure.



400rf-300A

Figure 2-6. Pneumatic Control Panel

## 2-3-7. Electrical Connection

**⚠ Caution**

**Before making the electrical connection, make sure that the red Latching Emergency Stop switch located on the Electrical Control Panel is depressed. Also ensure that all packaging materials and tools are removed from the case sealer.**

The case sealer and its Electrical Control Panel are wired for 208 – 240 VAC, 50/60 Hz, 3-phase power and a power cord is connected. However, no power plug is supplied. The power cord can be wired directly into a power distribution box or a plug can be installed. The recommended plug is a L15-20, 4-pin twist-lock. Possible wire code combinations are:

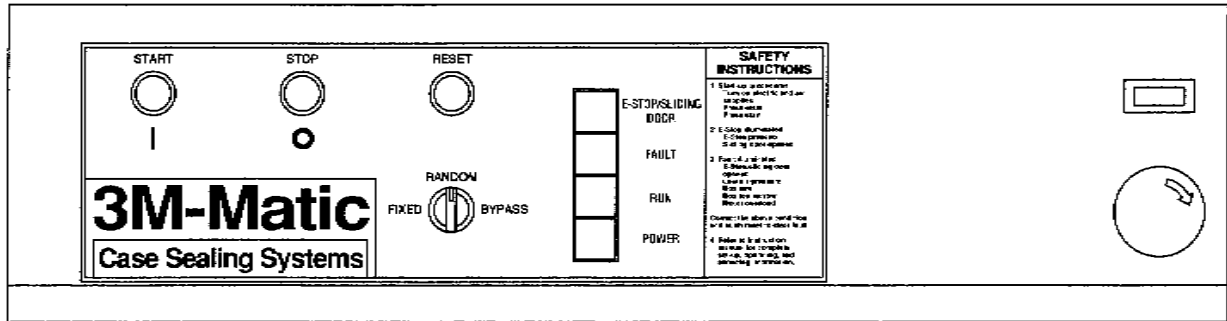
Black – Phase X	or	Black – Phase X
White – Phase Y		Brown – Phase Y
Red – Phase Z		Blue – Phase Z
Green – Ground		Yel/Grn – Ground

1. Turn the electrical power on by rotating the Main Disconnect switch CW. Refer to Figure 2-8. The white POWER indicator lights to show that power is available. Refer to Figure 2-7.
2. The red lights on the Electrical Control Panel indicate a Fault/E-Stop switch condition. Turn the red latching E-Stop switch CW to release the switch. The red FAULT and E-STOP/SLIDING DOOR indicators should turn off.
3. Press the blue RESET button on the Electrical Control Panel. You should observe air-powered movement of the Upper Head Assembly and the Rear Flap Folding Arm, which moves to an upright (extended) position.
4. Press the green START button on the Electrical Control Panel. Pressing this button applies electrical power to the two side belt drive motors and the infeed roller drive motors. The RUN indicator should light.

Viewing the case sealer from its infeed end, you should observe the right/rear drive belt turning in a CW direction and the left/front drive belt turning in a CCW direction. With the belts rotating as described, they will draw a carton into the machine. This is the normal operating condition.

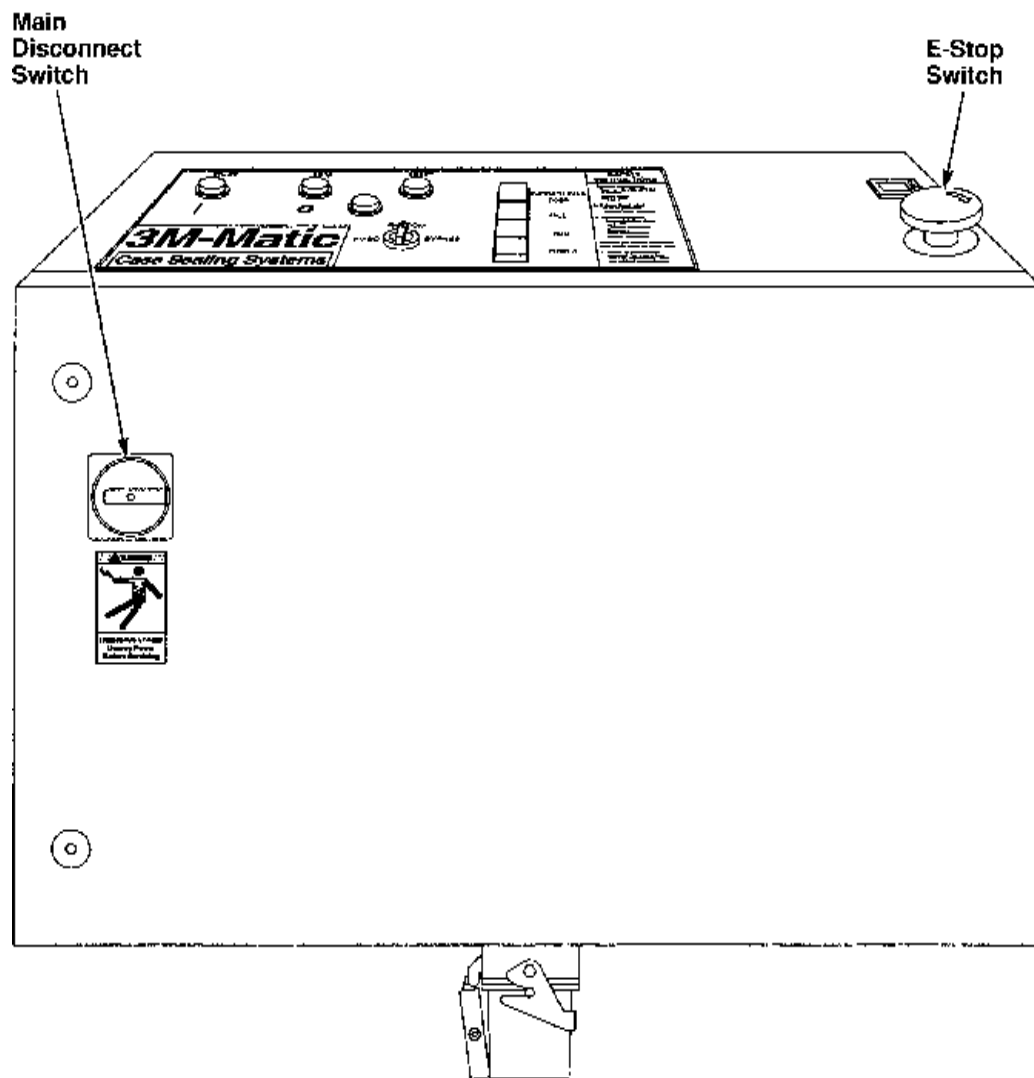
**✓ Note**

If the drive belts rotate in reverse, interchange any two of the black, white, or red 208 – 220 VAC wires at the plug or power distribution box. This will restore the motors to the correct rotation.



8001-204A

Figure 2-7. Electrical Control Panel (Top View)



8001-205A

Figure 2-8. Electrical Control Panel (Front View)

2-4. Tape Loading

**⚠ Warning**

**Turn air and electrical supplies off and disconnect before servicing taping heads. Never attempt to work on the taping heads or load tape when the box drive system is running. Each taping head is equipped with an extremely sharp cut-off knife. Before working with the taping heads or attempting to load/thread tape, identify the knife locations. Keep hands out of these areas except as necessary to service the taping heads. Failure to comply with these warnings can result in severe personal injury and/or equipment damage.**

The taping heads are pre-set to accommodate 2-inch [48 mm] wide tape rolls. To use and apply 1-1/2 inch [36 mm] or 1-3/4 inch [42 mm] wide tapes, refer to the Adjustments section for set up information.

A tape-threading tool is shipped with the case sealer for tape loading convenience. Retain the tool for continued use in the tape loading operation. For operator assistance, a threading diagram is applied to the taping heads. However, it is recommended that the more detailed instructions and illustrations in this manual be referred to the first few times the tape is loaded until the operator becomes thoroughly familiar with the tape loading operation.

For convenience in loading, the bottom taping head can be removed by lifting it out of the bed of the case sealer. The upper head assembly must be in its uppermost position to load tape in the top tape head.

Figure 2-9 shows the components of the top taping head.

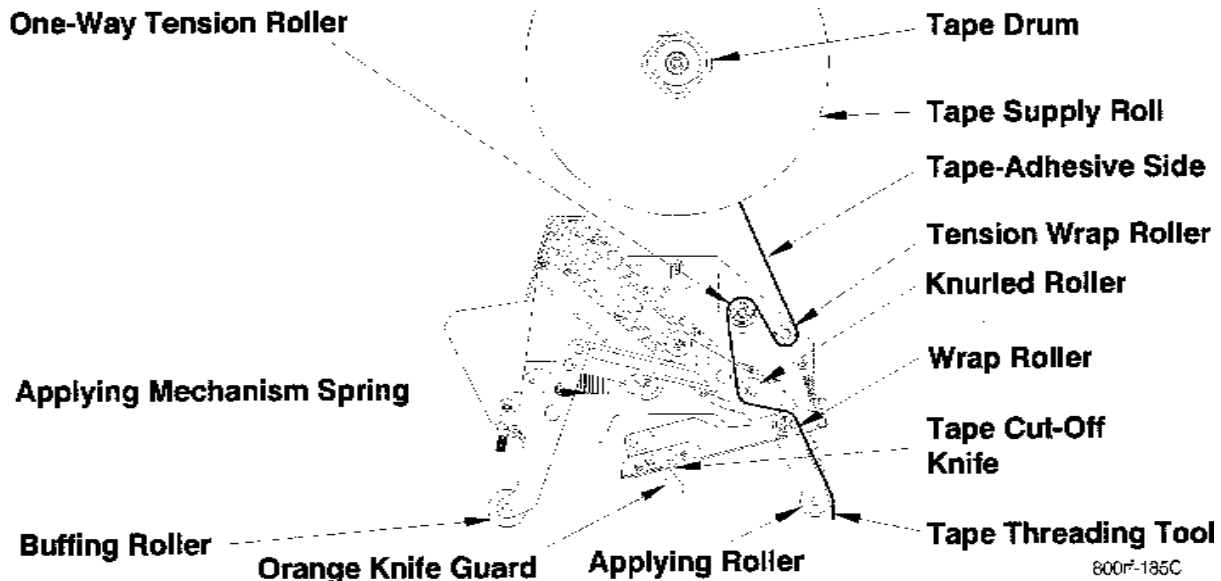
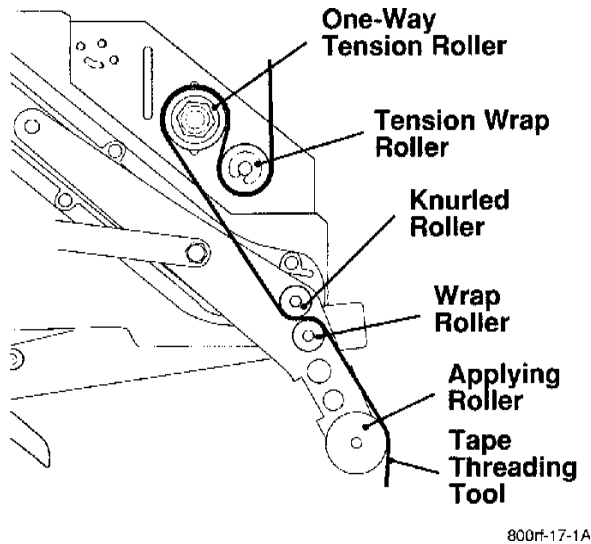


Figure 2-9. Top Taping Head Components

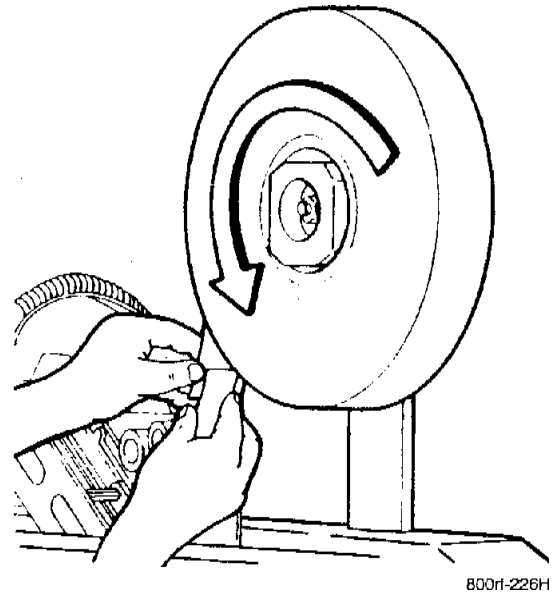


**2-4-1. Top Tape Head Loading**

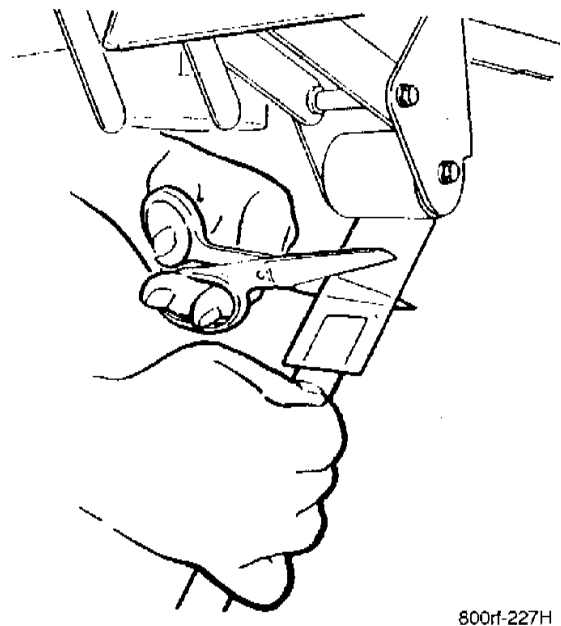
1. Turn off the Main Disconnect Switch on the Electrical Control Panel.
2. Insert the tape-threading tool downward around the rollers, as shown in Figure 2-10.

**Figure 2-10. Insert Tape Threading Tool**

3. Place the tape roll on the drum to dispense tape from the bottom of the roll toward the infeed end of the machine with the tape adhesive-side up. Attach the tape leading end to the upper end of the tape-threading tool, as shown in Figure 2-11.
4. Manually turn the tape roll to create slack tape while pulling the tape-threading tool through the tape-applying mechanism until the tool is in alignment with the applying roller.

**Figure 2-11. Attach Tape to Threading Tool**

5. Cut off the excess tape with a scissors or knife below the applying roller. Refer to Figure 2-12. **Retain the tape-threading tool for future use.**

**Figure 2-12. Cut Off Tape**

**2-4-2. Bottom Tape Head Loading**

The bottom taping head is loaded and threaded in the same manner as the top taping head. For ease in loading, lift the bottom taping head from the conveyor bed and follow the top tape head loading procedure. Refer to Figure 2-13.

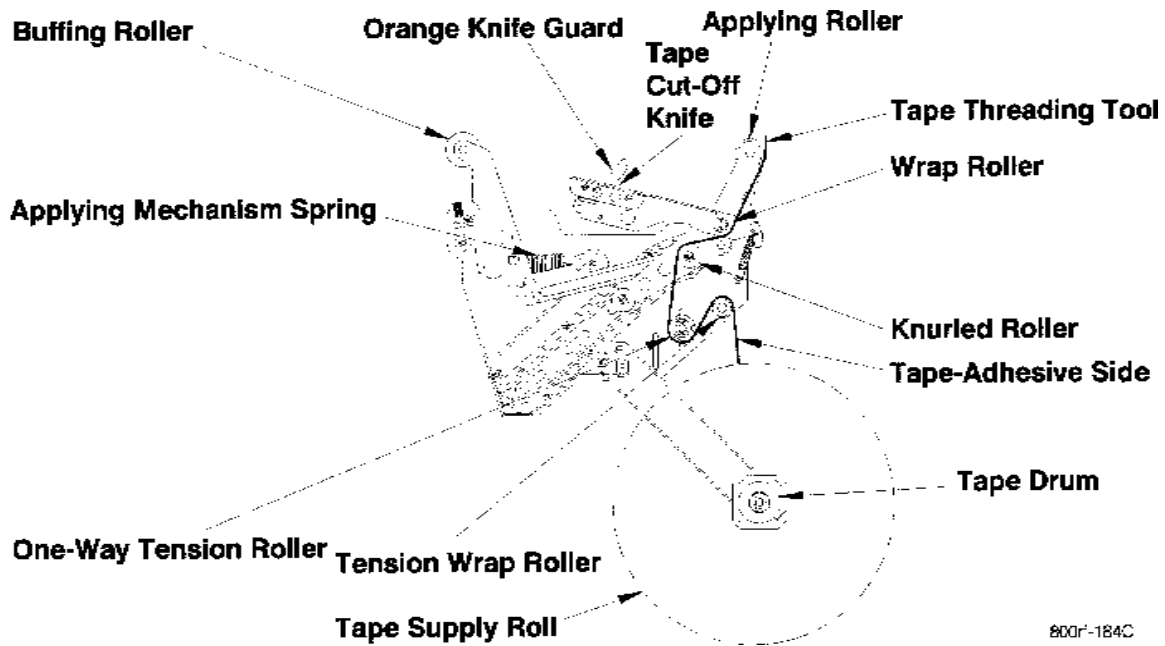


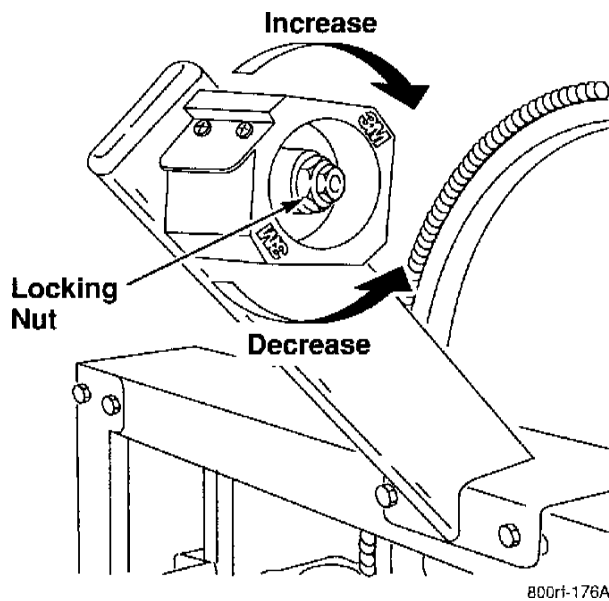
Figure 2-13. Bottom Taping Head

## 2-5. Tape Drum Friction Brake

1. Refer to Figure 2-14. Turn the locking nut clockwise to increase the braking force or counterclockwise to decrease the force.
2. Adjust the friction brake for the minimum braking force that prevents excessive overtravel.

✓ **Note**

Excessive braking force causes poor tape application and may lead to tape tabbing on the trailing tape leg.



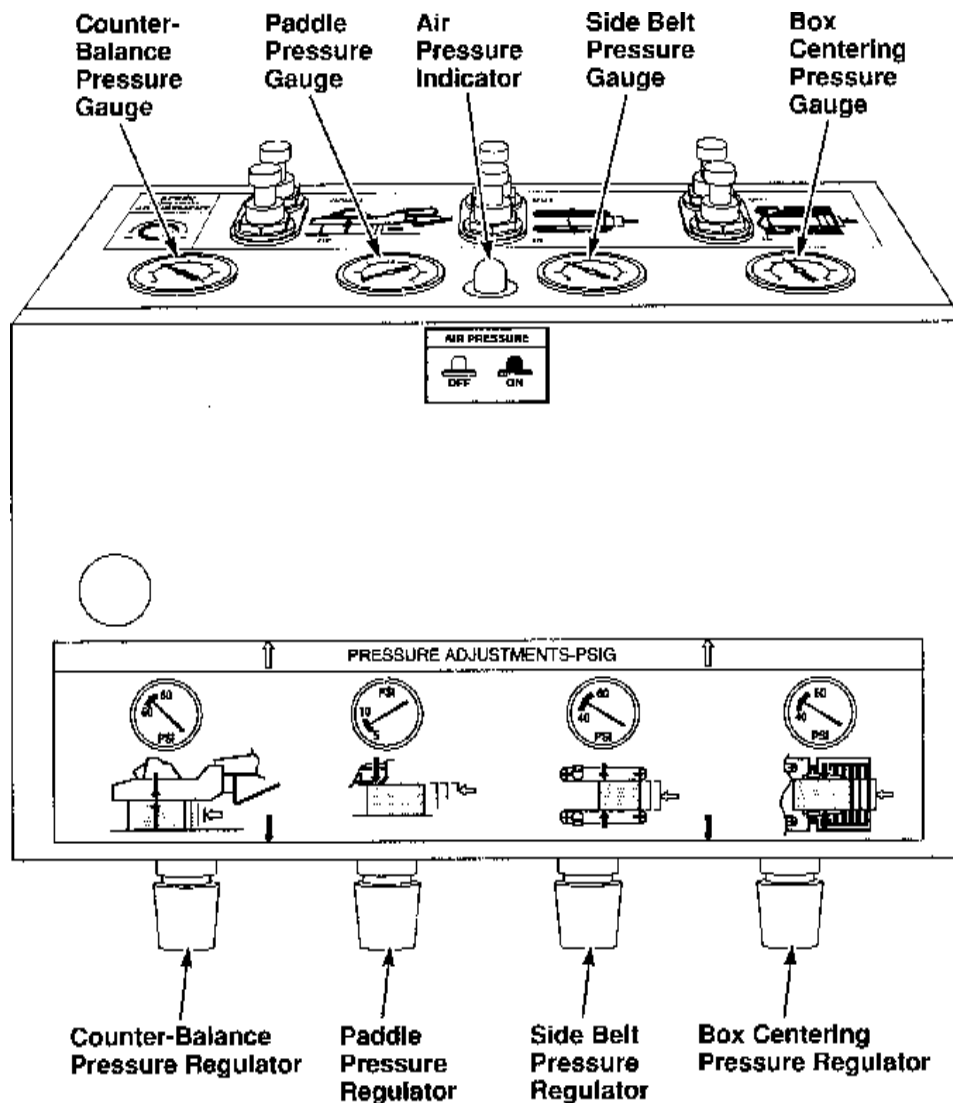
**Figure 2-14. Friction Brake Adjustment**

## 2-6. Checkout Inspection (to be performed by an authorized 3M Service Technician)

### 2-6-2. Static Tests

1. Connect the air supply line and the electrical power to the case sealer and power up the machine.
  - a. Turn the Air On/Off Valve to the ON position.
  - b. Turn the Main Disconnect Switch on the Electrical Control Panel to the ON position.
  - c. Press the RESET button on the Electrical Control Panel.
2. Verify the following conditions:
  - Air Pressure Indicator on the Pneumatic Control Panel is red, showing that air pressure is applied to the system, the rear flap folding arm is extended, and the flap folder is retracted.
  - Paddle is down.
  - Side belts are out.
  - Box centering rails are out.
  - Box stop gate is up.
3. Check the Main Input Air Pressure Regulator. The pressure gauge should read 95 PSIG.
  - a. If the pressure is lower, check the input pressure at the source. If the pressure is lower than 75 PSIG, there is not enough pressure to operate the case sealer properly.
  - b. If the pressure is above 95 PSIG, adjust the air pressure regulator to read 95 PSIG on the gauge. (CW – increases pressure, CCW – decreases pressure).

4. Check the Box Centering Pressure gauge on the Pneumatic Control Panel. Refer to Figure 2-15. The gauge should read 40 – 60 PSIG. If the pressure does not fall within this range, adjust the pressure regulator (CW – increases pressure, CCW – decreases pressure).
5. Check the Side Belt Pressure gauge on the Pneumatic Control Panel. The gauge should read 40 – 60 PSIG. If necessary, adjust the Side Belt Pressure Regulator to this setting. (CW – increases pressure, CCW – decreases pressure).
6. Check the Paddle Pressure gauge on the Pneumatic Control Panel. The gauge needle should be at 7 PSIG. Adjust as needed.
7. Check the Counter-Balance Pressure gauge on the Pneumatic Control Panel. The gauge should read 40 – 60 PSIG. If the pressure does not fall within this range, adjust the pressure regulator (CW – increases pressure, CCW – decreases pressure).



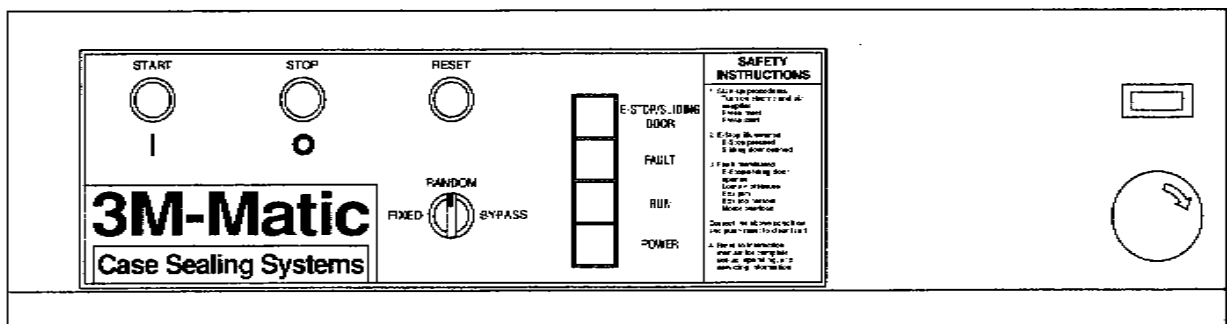
800H-203A

Figure 2-15. Pneumatic Control Panel

8. Press the START button on the Electrical Control Panel. Refer to Figure 2-16. Verify that the side belts and the infeed rollers start turning.

✓ **Note**

If pressing the START button does not result in continuous running of the side belt drive motors and the infeed drive motors, then a “Fault Condition” exists. Check the motor overload circuit breakers OL1, OL2, OL3, and OL4, which are the most likely cause. These circuit breakers are located inside the Electrical Control Panel. Make sure the green START buttons are all pushed in.



800rf-204A

**Figure 2-16. Electrical Control Panel**

9. Check the operation of the red latching Emergency Stop switches (one E-Stop switch is located on the Electrical Control Panel and the other switch is located at the rear of the machine) and the STOP button on the Electrical Control Panel. Verify that the drive motors stop when either E-Stop switch is pressed or the STOP button is pressed.

The case sealer must be restarted each time it stops before checking the next switch. Restart the machine by pressing the RESET button and then the START button.

**⚠ Caution**

**If the EMERGENCY STOP switches or the STOP button do not function properly, do not continue with the checkout. Refer to the Theory of Operation and Troubleshooting sections and correct the situation before continuing.**

**⚠ Warning**

**Steps 10 and 11 require opening the Electrical Control Panel door. This exposes 220 VAC. Be cautious or personal injury can result.**

10. Check the operation of the electrical interlocks for the sliding doors. With the drive motors running, move each sliding door, one at a time, from its closed position. Verify that the drive motors stop and that they cannot be restarted by pressing the RESET button and then the START button until the door is closed.

Verify also that when the door is open only OUTPUT LEDs 13 and 14 are ON and no INPUT LEDs are displayed on the Programmable Controller located inside of the Electrical Control Panel.

11. Refer to Figure 2-17. Check the operation of the photocells PC1 through PC6. Cover each photocell in turn and observe the associated INPUT LED number displayed on the Programmable Controller. The INPUT LED should be ON when the associated photocell is covered.

<u>Photocell</u>	<u>INPUT LED</u>
PC1	IN 4
PC2	IN 5
PC3	IN 6
PC4	IN 7
PC5	IN 8
PC6	IN 9

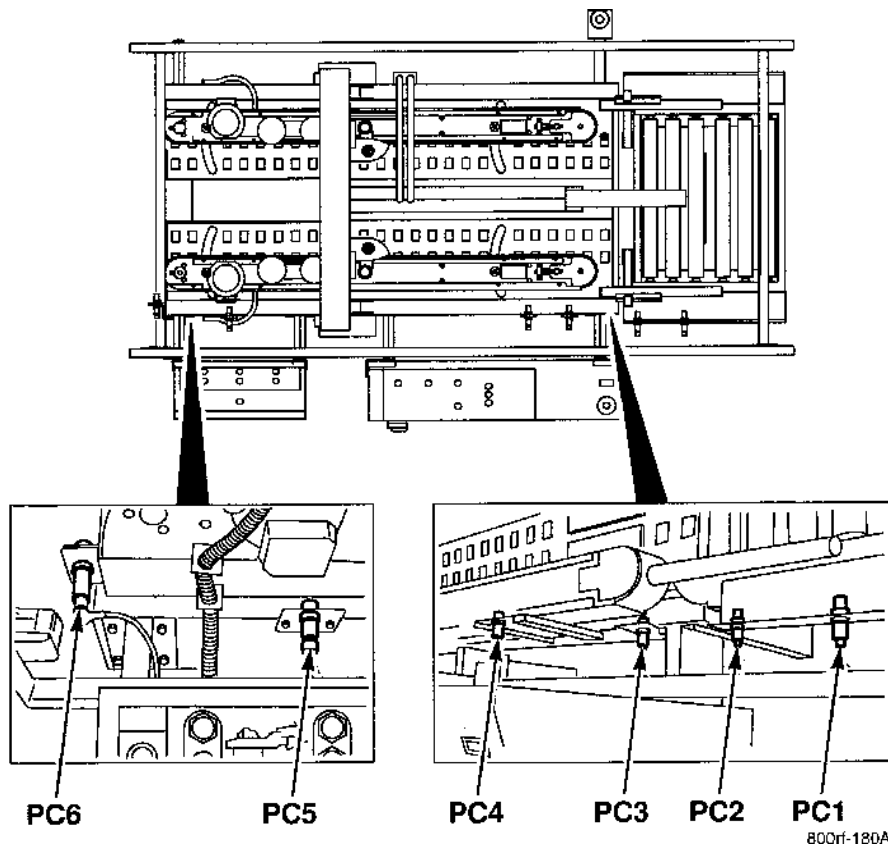
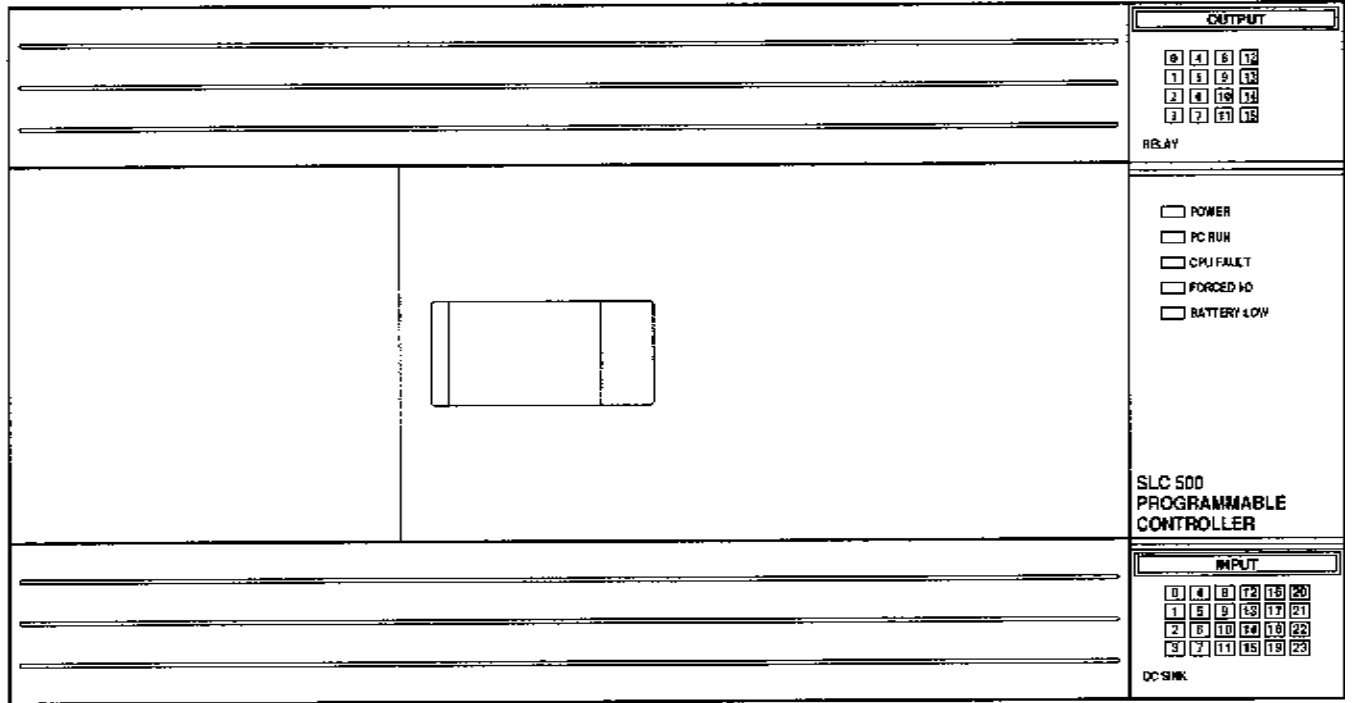


Figure 2-17. Photocell Locations

**2-6-2. Programmable Controller Inputs and Outputs**

Figure 2-18 shows the SLC 500 Programmable Controller used in the 3M-Matic™ 800rf Type 39800 Case Sealer. The Programmable Controller is located inside of the Electrical Control Panel.



800rf-2D6A

**Figure 2-18. SLC 500 Programmable Controller**

Figure 2-19 shows the Programmable Controller lights that turn on during the following startup conditions.

**POWER ON**

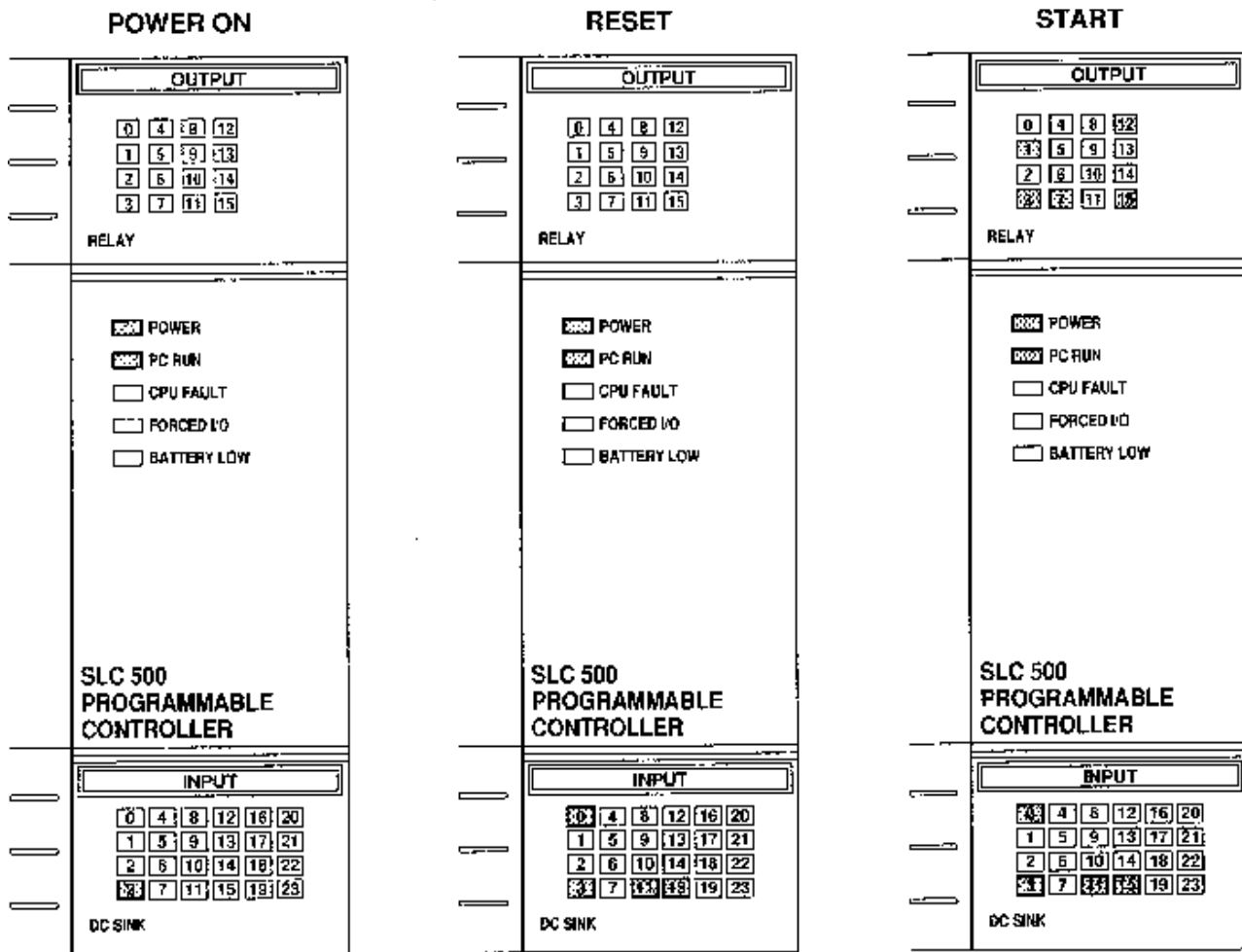
POWER  
PC RUN  
INPUT 3

**RESET**

POWER  
PC RUN  
INPUT 0, 3, 11, 15

**START**

POWER  
PC RUN  
INPUT 0, 3, 11, 15  
OUTPUT 1, 3, 7, 12, 15



BDC-1-272A

Figure 2-19. Programmable Controller Startup Conditions



Table 2-1 lists the INPUT LEDs displayed on the Programmable Controller, the names of the input signals that feed the LEDs, and the conditions that cause the LEDs to turn ON or OFF.

View the LEDs with the Main Disconnect Switch and the Air On/Off Valve turned to their ON positions.

**Table 2-1. Programmable Controller Inputs**

<b>INPUT LED</b>	<b>Input Signal Name</b>	<b>LED Condition</b>
0	Stop	OFF when STOP button is pushed.
1	Start	ON when START button is pushed.
2	Reset	ON when RESET button is pushed.
3	E-Stop/Sliding Door	OFF when E-Stop switch is pushed or door is opened.
4	PC1	ON when photocell PC1 is blocked.
5	PC2	ON when photocell PC2 is blocked.
6	PC3	ON when photocell PC3 is blocked.
7	PC4	ON when photocell PC4 is blocked.
8	PC5	ON when photocell PC5 is blocked.
9	PC6	ON when photocell PC6 is blocked.
10	Box Height (Paddle) Switch	ON when paddle is pushed up.
11	Head Upper Limit Switch	ON when upper head assembly is at its upper limit.
12	Minimum Width Switch	ON when side belt assemblies close to innermost position.
13	Fixed Mode Switch	ON when selector switch is set to FIXED position.
14	Bypass Mode Switch	ON when selector switch is set to BYPASS position.
15	Low Air Pressure Switch	ON when air pressure is above 50 PSIG.
16	Flap Folder Arm Switch	ON when cylinder piston is near reed switch.
17	Overload	ON when any motor overload switch trips.
18	Not used	
19	Not used	
20	Not used	
21	Not used	
22	Not used	
23	Not used	

Table 2-2 lists the OUTPUT LEDs displayed on the Programmable Controller, the names of the output signals that feed the LEDs, and the conditions that cause the LEDs to turn ON or OFF.

View the LEDs with the Main Disconnect Switch and the Air On/Off Valve turned to their ON positions.

**Table 2-2. Programmable Controller Outputs**

<b>OUTPUT LED</b>	<b>Output Signal Name</b>	<b>LED Condition</b>
0	Side Belt Lock	ON when side belts lock.
1	Side Drive Motors	ON when side belt drive motors are running.
2	Flap Folder Arm	ON when flap folder arm is down.
3	Infeed Gate	ON when infeed gate is down.
4	Centering Rails	ON when photocell PC1 is blocked.
5	Side Drive Assembly Closing	ON when photocell PC3 is blocked.
6	Paddle Cylinder	ON when paddle is pushed up.
7	Fork Cylinder	ON when fork is up.
8	Head Assembly Cylinder Brakes	ON when brakes turn on.
9	Head Raising Cylinder Lower Port	ON when upper head assembly lowers.
10	Head Raising Cylinder Upper Port	ON when upper head assembly raises.
11	Rear Flap Folder	ON when rear flap folder folds last minor flap.
12	Infeed Motors (2)	ON when infeed motors are running.
13	Alarm	ON when any fault condition exists.
14	E-Stop Signal	ON when either E-Stop switch is pushed.
15	Ready Signal	ON when START button is pushed.

### 2-6-3. Dynamic Tests

The following procedures check the actual operation of the 800rf Case Sealer. The following conditions must be observed.

- Electrical power and compressed air are available and turned on.
  - The four safety doors are in their closed positions.
  - Cases should have:
    - the bottoms folded closed
    - a minimum weight to hold the case on the conveyor bed with the bottom flaps flat
    - the front and rear flaps inside the side flaps
1. Apply air pressure and electrical power and press the RESET and the START buttons on the Electrical Control Panel.
  2. If applicable, run the longest box (19 inches to 24 inches) through the case sealer. Check the following sequence of events.
    - a. The box feeds from the infeed conveyor rollers. The box is centered by the box centering rails and the box stop gate moves up.
    - b. The box is released and moves to the side belts.
    - c. The side belts move inward and hold the box, driving it toward the fork.
    - d. The box arrives at the fork and the side belts stop driving the box.
    - e. The head lowers to the box, stopping at the top of the box without distorting it.

- f. The side belts restart.
- g. Just before the sides of the box are folded down, the rear flap of the box is folded down into place.

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#### ✓ Note

The timing of step g will vary depending on the length of the box.

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- h. The sides of the box are folded down.
- i. The top flap compression rollers touch the sides of the top of the box without causing the side flaps to overlap.
- j. C-clips of tape are applied to both the top and bottom center seams of the box.
- k. The box exits the case sealer.
- l. The head rises to its upper position, the side belts return to their outer position, the fork rises to its normal position, and the box stop gate lowers to allow the next box to be fed into the machine.

---

#### ✓ Note

If any of the steps outlined above do not occur correctly, refer to the appropriate adjustment in the Adjustments section of this manual.

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3. If applicable, repeat the procedure outlined in step 2 using the shortest box (8 inches to 13 inches).
4. If applicable, repeat the procedure outlined in step 2 using a box between 12 and 19 inches.
5. Now that a representative sample of boxes has been checked and appropriate adjustments have been made, flood the infeed line with a random array of boxes and check for consistent operation of the case sealer.

**2-7. Placing 800rf Case Sealer in Production Line**

When installing the 800rf Case Sealer into a production line, ensure compliance with the following requirements:

- The case sealer must be level.
- The customer’s infeed conveyor may be powered or inclined to the case sealer.
- The customer’s infeed conveyor box delivery speed CANNOT exceed 60 ft/min.
- The customer’s exit conveyor may be powered or inclined whichever positively conveys boxes away from the exit end of the case sealer.

- The width of the customer’s infeed conveyor and exit conveyor should fall within 22 inches [560 mm] minimum to 38 inches [965 mm] maximum.

Figure 2-20 shows the 800rf Case Sealer connected to customer-supplied infeed and exit conveyors.

**⚠ Caution**

**The 800rf Case Sealer must not be run in a production line without being joined to the customer’s infeed conveyor. This is to restrict an operator from being exposed to moving case sealer components during its operation.**

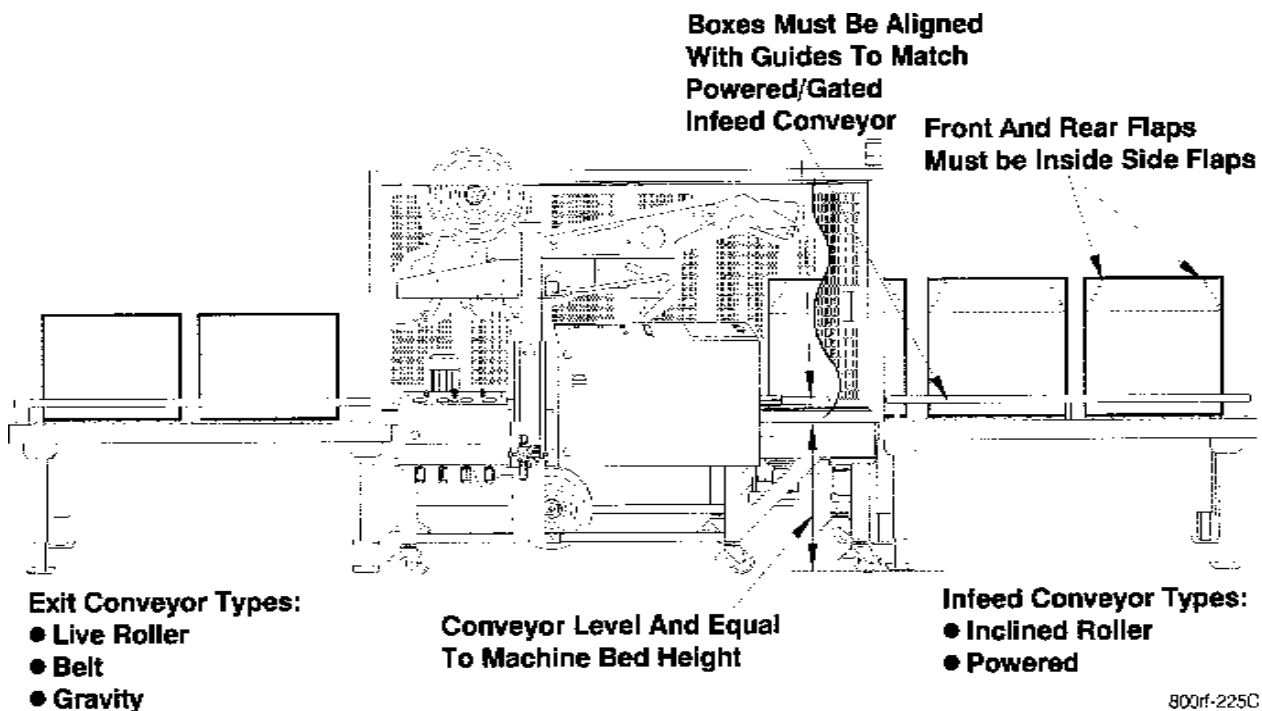


Figure 2-20. Typical Conveyor Setup

## 2-8. Special Setup Procedure

### 2-8-1. Relocating Pneumatic and Electrical Control Panels

#### ▲ Warning

**Turn off electrical power and air supply and disconnect power cord from electrical supply before beginning this procedure. Failure to comply with these warnings can result in severe personal injury and/or equipment damage.**

Relocating the case sealer Pneumatic and Electrical Control Panels from their standard position which is the left/front side, as viewed from the infeed end of the machine, enables the case sealer to be operated from the right/rear side of the machine.

At various steps of this procedure it is recommended that two (2) people be involved in moving certain components from the front to the rear of the case sealer.

To prevent the case sealer from rolling, lock all the casters before starting these procedures.

#### ✓ Note

Following these procedures will accomplish having the control panels located to the right/rear of the case sealer and will orient the Electrical Control Panel on the left and the Pneumatic Control Panel on the right, as viewed by the operator facing the rear side of the machine.

#### Removing Air On/Off Valve/Regulator/Filter, Pneumatic Control Panel, and Brackets

1. Disconnect the air supply from the Air On/Off Valve.
2. Open the Pneumatic Control Panel (use 8 mm hex wrench) to assist in removing the input air line from the air outlet on the Main Air Pressure Regulator. Push in and hold the collet (release ring) and pull the air line free. Refer to Figure 2-21.

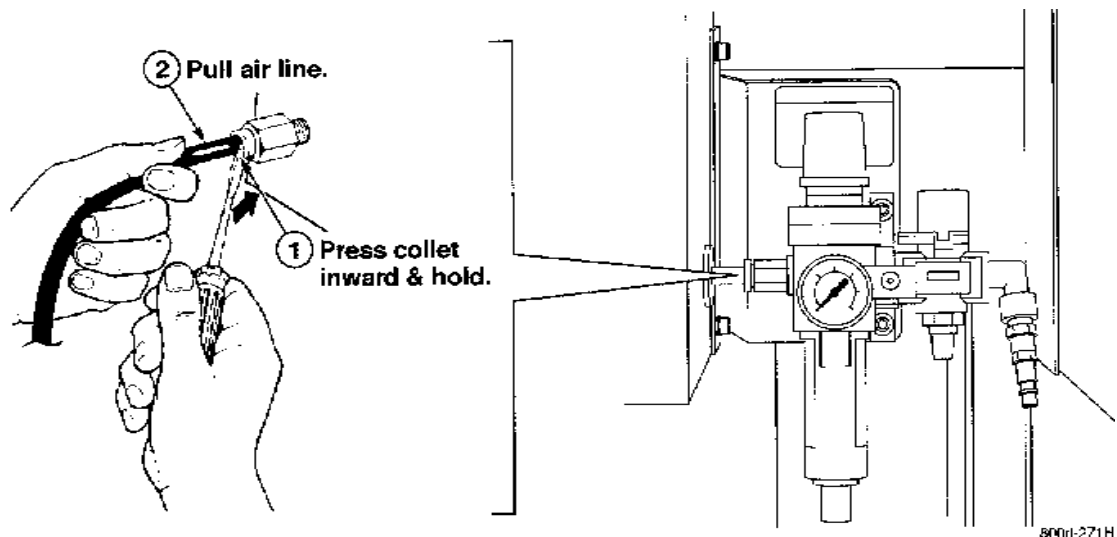
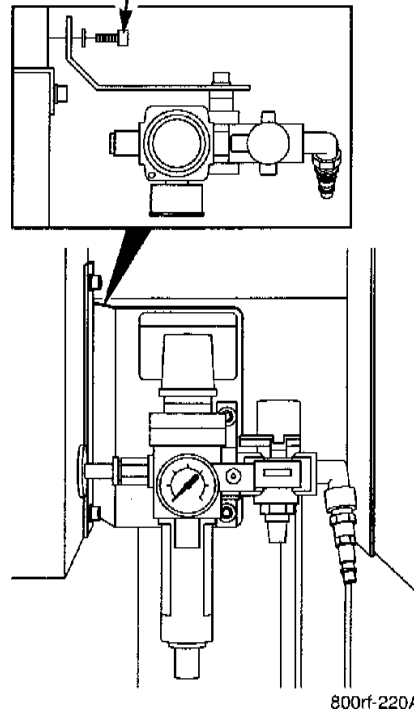


Figure 2-21. Disconnecting Air Line

3. Disconnect the plastic conduit at the Electrical Control Panel, which connects to the Pneumatic Control Panel. This conduit contains the electrical wires for the valve solenoids.
4. Slide the left front sliding door all the way to the right to provide additional access.
5. Remove the Air On/Off Valve/Regulator/Filter bracket.
  - a. Remove the 2 socket-head screws (6 mm) securing the bracket to the mainframe bracket. Refer to Figure 2-22.
  - b. Set this bracket (with Air On/Off Valve/Regulator/Filter attached) aside for use later.
6. Prepare two (2) blocks (10" long x 8" wide x 18" high). These blocks will be used to support the control panels later in this procedure.

**Socket-Head Screws (2)**

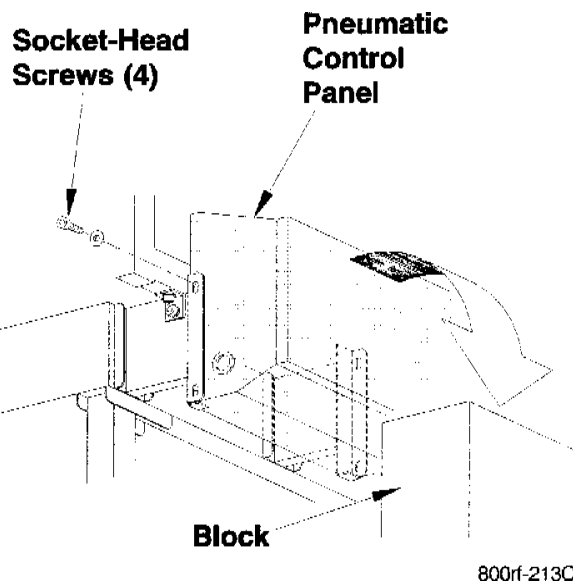


**Figure 2-22. Removing Air On/Off Valve/Regulator/Filter Bracket**

7. Remove the Pneumatic Control Panel.
  - a. Place a block under the Pneumatic Control Panel.
  - b. Remove the 4 socket-head screws (6 mm) securing the control panel to the left and right brackets. Refer to Figure 2-23.
  - c. Save these screws for use later.
  - d. Ease the control panel onto the block. Make sure the block is centered under the control panel so the panel is stable.

**⚠ Caution**

**Blocks must be capable of supporting the weight of the Electrical Control Panel, which is about 50 pounds [22.7 kg].**

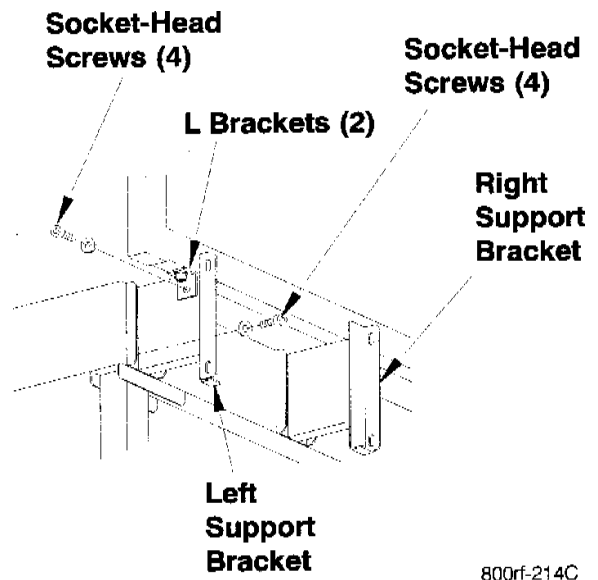


**Figure 2-23. Removing Pneumatic Control Panel**

8. Remove the left and right mainframe brackets that support the Pneumatic Control Panel. Refer to Figure 2-24.
  - a. Remove 8 socket-head screws (6 mm) securing the left support bracket to the case sealer (4 screws holding the bracket to the mainframe, and 4 screws holding the 2 L brackets).
  - b. Remove 4 socket-head screws (6 mm) securing the right support bracket to the case sealer.
  - c. Save these screws and brackets for use later.

#### Moving Support Brackets and Installing Pneumatic Control Panel

9. Install the left support bracket and L brackets (removed from the front of the machine) at the rear of the machine. Refer to Figure 2-25. Secure the brackets with the socket-head screws (6 mm).
10. Remove the right mainframe bracket from the rear of the machine and install it at the front left of the case sealer. Refer to Figure 2-25.
  - a. Remove the 6 socket-head screws (6 mm) securing the mainframe bracket to the case sealer (4 screws holding the bracket to the mainframe, and 2 screws holding the bracket to the underside of the door frame).
  - b. Install this bracket at the front left of the case sealer. Secure the bracket to the mainframe with 4 socket-head screws, and secure the bracket to the underside of the door frame with 2 socket-head screws.
11. Install the right support bracket (removed from the front of the machine) at the rear right of the case sealer. Refer to Figure 2-25. Secure the bracket to the mainframe with 4 socket-head screws.
12. Install the Pneumatic Control Panel at the rear of the case sealer.
  - a. Lift the Pneumatic Control Panel from the block and slide it through the undercarriage to the rear of the case sealer.
  - b. Block the control panel and then lift it and carefully set it onto the support brackets.
  - c. Hold the control panel in place and secure it to the support brackets with 4 socket-head screws.



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**Figure 2-24. Removing Support Brackets for Pneumatic Control Panel**

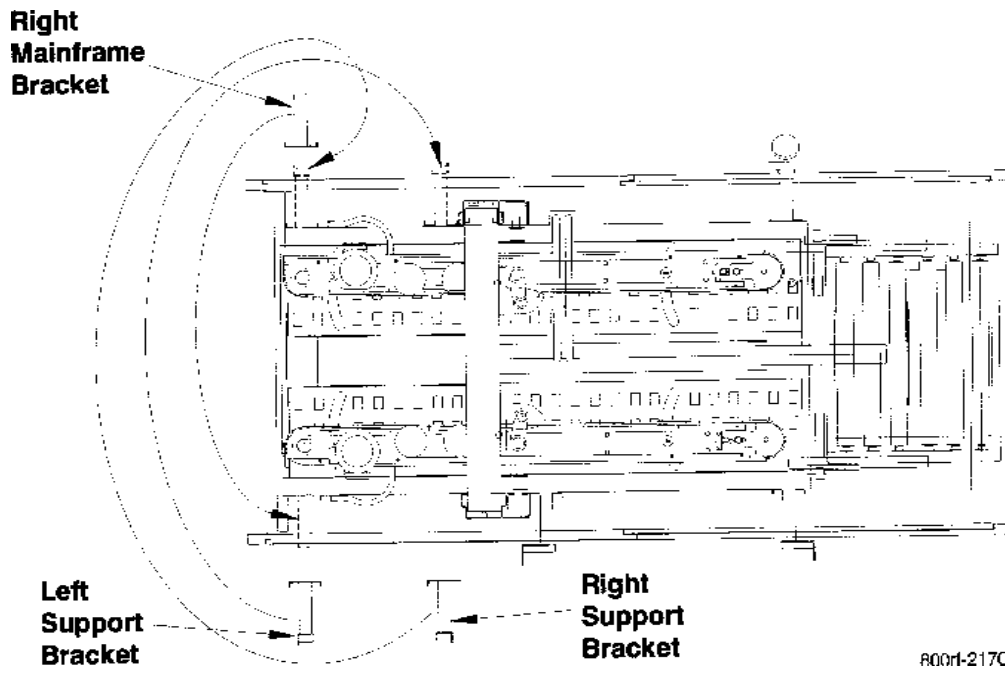
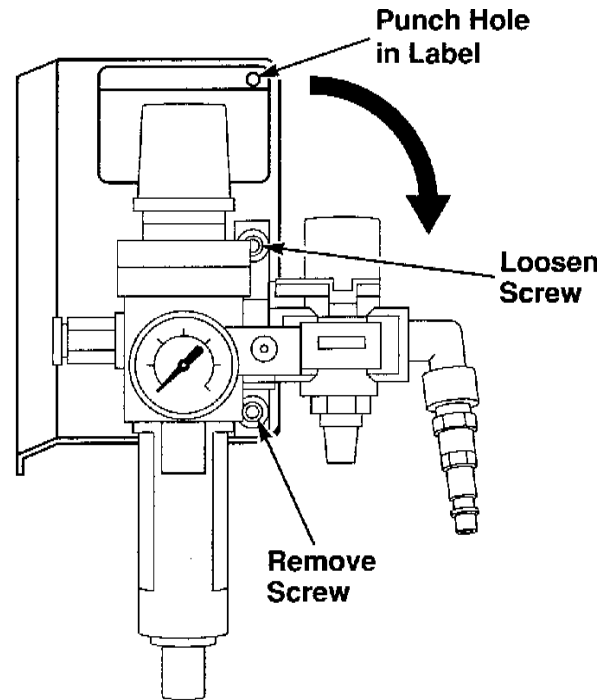


Figure 2-25. Moving Support Brackets for Pneumatic Control Panel



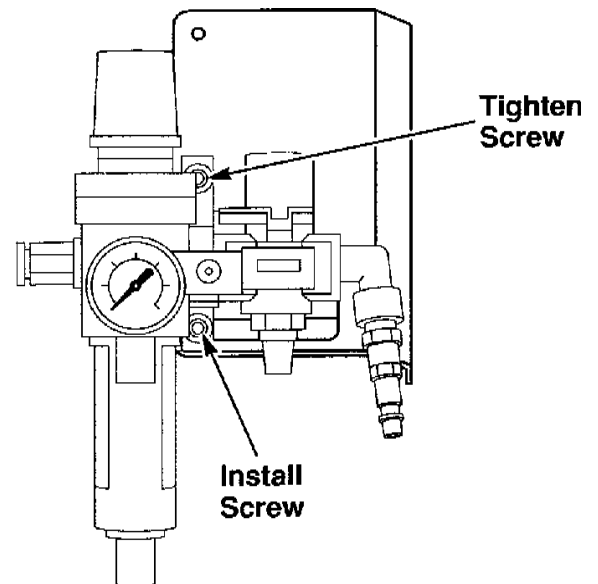
**Installing Air On/Off Valve/Regulator/Filter**

13. Locate the Air On/Off Valve/Regulator/Filter and bracket.
14. Rotate the bracket 180°.
  - a. Remove the lower socket-head screw (4 mm) and loosen the upper screw, but do not remove it. Refer to Figure 2-26.
  - b. Punch a hole in the label. Then rotate the bracket 180°. The label will be upside-down (a replacement label is available and may be ordered as replacement parts are ordered).
  - c. Secure the Air On/Off Valve/Regulator/Filter to the bracket by installing the lower socket-head screw and tightening the upper screw. Refer to Figure 2-27.
15. Mount the bracket with the Air On/Off Valve/Regulator/Filter to the left bracket that supports the Pneumatic Control Panel.



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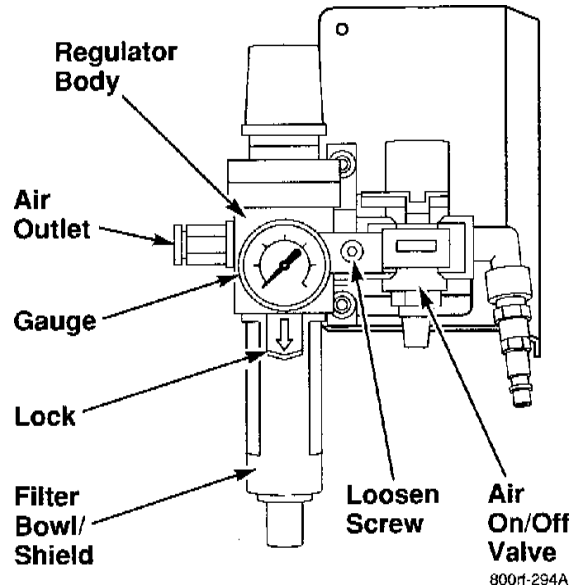
**Figure 2-26. Air On/Off Valve/Regulator/Filter and Bracket**



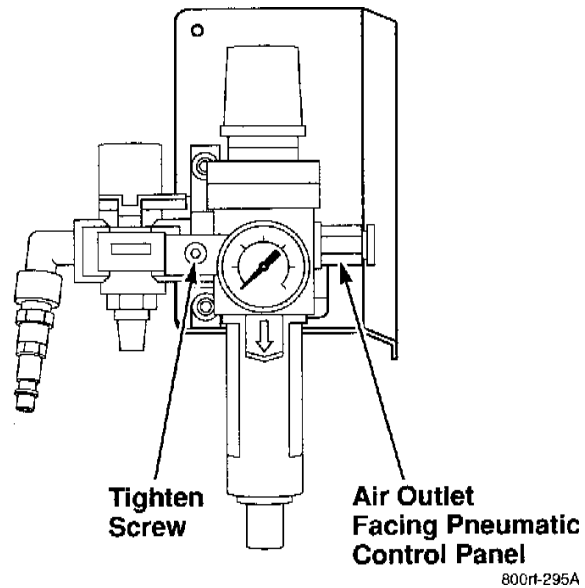
800rf-222A

**Figure 2-27. Air On/Off Valve/Regulator/Filter and Bracket Rotated 180°**

16. Remove and separate the Air On/Off Valve from the Regulator/Filter.
  - a. Loosen the hex screw in the bracket that holds the two assemblies together. Refer to Figure 2-28.
  - b. Separate the Air On/Off Valve from the Regulator/Filter by removing both assemblies from the bracket.
17. Rotate the Regulator/Filter assembly 180°.
  - a. Swap the air gauge and air plug. Do this by unscrewing the gauge and the plug, then install the gauge in the hole previously containing the plug, and vice versa.
  - b. Remove the air outlet and install it on the opposite side of the regulator body.
  - c. Remove the filter bowl and shield by sliding the lock down, rotating the unit in either direction, and separating the unit from the regulator body.
  - d. Install the filter bowl and shield so the lock is located directly under the gauge.
18. Install the Air On/Off Valve and Regulator/Filter so the air outlet on the Regulator/Filter is facing the Pneumatic Control Panel and the Air On/Off Valve is facing the Electrical Control Panel. Refer to Figure 2-29.
  - a. Place the two assemblies in the bracket that holds them together and tighten the hex screw.

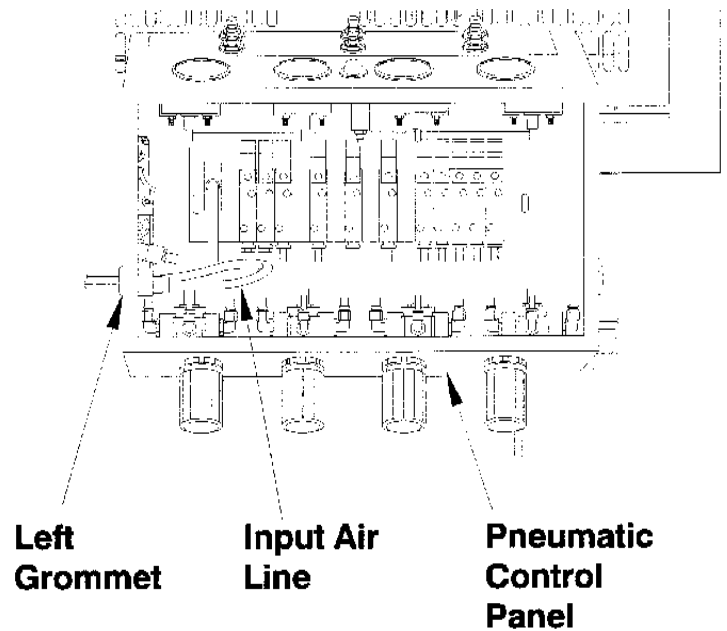


**Figurer 2-28. Separate Air On/Off Valve from Regulator/Filter**



**Figurer 2-29. Air On/Off Valve/Regulator/Filter Reconfigured**

19. Connect the air line from the Pneumatic Control Panel to the air outlet on the regulator body.
  - a. Open the Pneumatic Control Panel (8 mm hex wrench) and remove the center of the left knockout grommet.
  - b. Locate the input air line, pull it out and loop it around, then route it through the hole in the left grommet (be careful not to kink the air hose). Refer to Figure 2-30.
  - c. Connect the input air line to the air outlet by inserting the air line fully into the collet and pulling gently back to lock the air line into place.

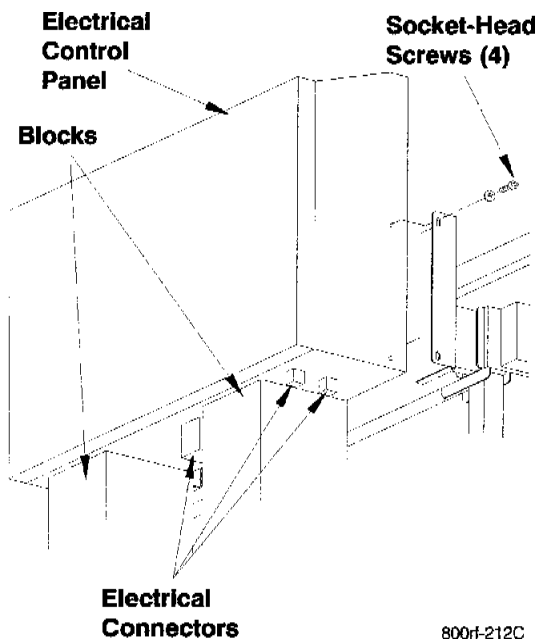


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**Figure 2-30. Rerouting Input Air Line**

**Removing Electrical Control Panel**

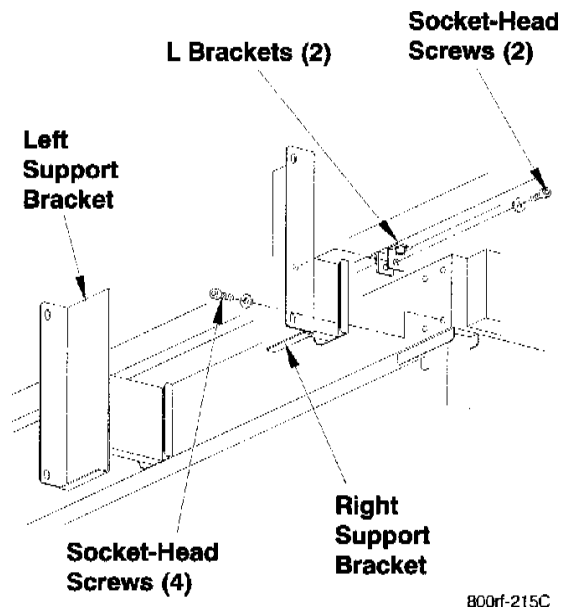
20. Remove the Electrical Control Panel. This step requires two people.
  - a. Disconnect the large electrical connector and the two smaller infeed motor electrical connectors located under the Electrical Control Panel.
  - b. Place two (2) blocks (described in Step 6) under the Electrical Control Panel.
  - c. While holding the control panel firmly against the support brackets, remove the 4 socket-head screws (6 mm) securing the panel to the left and right brackets. Refer to Figure 2-31.
  - d. Save these screws for use later.
  - e. Ease the control panel onto the blocks. Make sure the blocks are centered under the control panel so the panel is stable. Be careful not to damage the electrical connectors.
  - f. Carefully move the blocked Electrical Control Panel aside for later work.



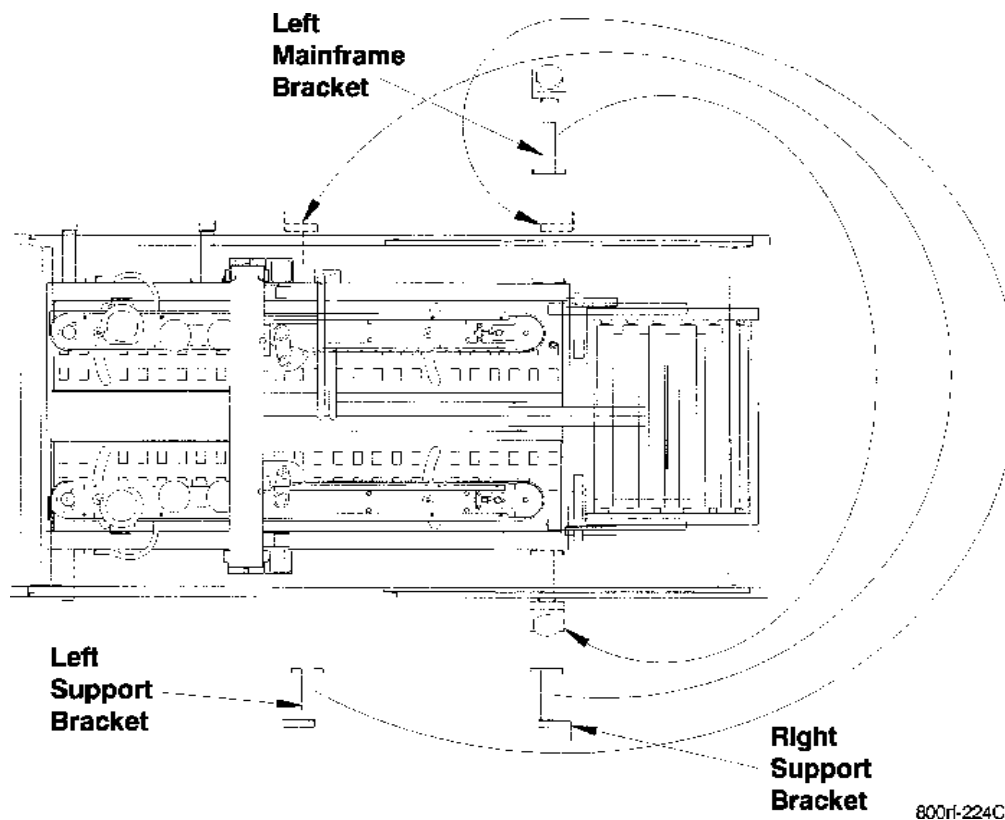
**Figure 2-31. Removing Electrical Control Panel**

**Moving Support Brackets and Installing Electrical Control Panel**

21. Slide both sliding doors all the way to the exit end of the machine to provide additional access.
22. Remove the right support bracket from the front of the machine and install it at the rear right of the case sealer.
  - a. Remove 6 socket-head screws (6 mm) securing the right support bracket to the case sealer (4 screws holding the bracket to the mainframe, and 2 screws holding the bracket to the two L brackets attached to the underside of the door frame). Refer to Figure 2-32.
  - b. Install this bracket at the rear right of the case sealer. Refer to Figure 2-33. Secure the bracket to the mainframe with 4 socket-head screws.



**Figure 2-32. Removing Support Brackets for Electrical Control Panel**



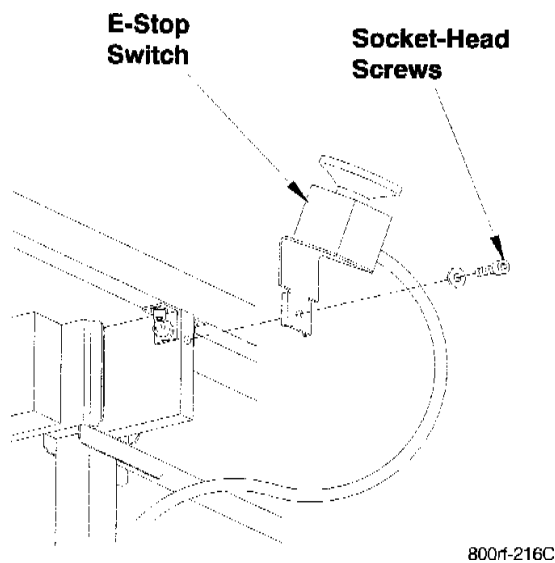
**Figure 2-33. Moving Support Brackets for Electrical Control Panel**

23. Remove the mainframe bracket and E-Stop switch from the rear left of the machine and install the mainframe bracket at the front right of the case sealer. Refer to Figure 2-33.
  - a. Remove 1 socket-head screw securing the E-Stop switch and bracket to the mainframe bracket. Set the E-Stop switch aside; it will be installed later.
  - b. Remove 6 socket-head screws (6 mm) securing the mainframe bracket to the case sealer (4 screws holding the bracket to the mainframe, and 2 screws holding the bracket to the two L brackets attached to the underside of the door frame).
  - c. Install this bracket at the front right of the case sealer. Secure the bracket to the mainframe and L brackets with 6 socket-head screws.
24. Remove the left support bracket from the front of the machine and install it at the rear left of the case sealer. Refer to Figure 2-33.
  - a. Remove 4 socket-head screws (6 mm) securing the left support bracket to the case sealer.
  - b. Install this bracket at the rear left of the case sealer. Secure the bracket to the mainframe and L brackets with 6 socket-head screws.
25. Install the Electrical Control Panel at the rear of the case sealer. This step requires two people.
  - a. With one person on each side, lift the Electrical Control Panel from the blocks and carefully set it onto the support brackets.
  - b. Hold the control panel in place and secure it to the support brackets with 4 socket-head screws.

26. Connect the electrical connectors and cables to the Electrical Control Panel.
  - a. Route the electrical connectors and cables through the undercarriage to the rear of the case sealer.
  - b. Connect the large electrical connector and the two smaller infeed motor electrical connectors to the receptacles located under the Electrical Control Panel.
  - c. Connect the plastic conduit from the Pneumatic Control Panel to the receptacle located under the Electrical Control Panel.
27. Install the E-Stop switch.
  - a. Locate the E-Stop switch and gently pull sufficient wire (extra wire is coiled in the frame) from the frame to route the E-Stop switch under the machine to the front right mainframe bracket.
  - b. Secure the E-Stop switch bracket to the mainframe bracket with 1 socket-head screw. Refer to Figure 2-34.

**Verify Correct Operation**

28. Close all four sliding doors to engage the interlock switches.
29. Connect the main air supply to the Air On/Off Valve.
30. Connect the power cord to the electrical supply.
31. Turn on the case sealer air supply and electrical power.
32. Verify correct operation by running test cartons through the case sealer.



**Figure 2-34. Installing E-Stop Switch and Bracket**

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### 3. Adjustments

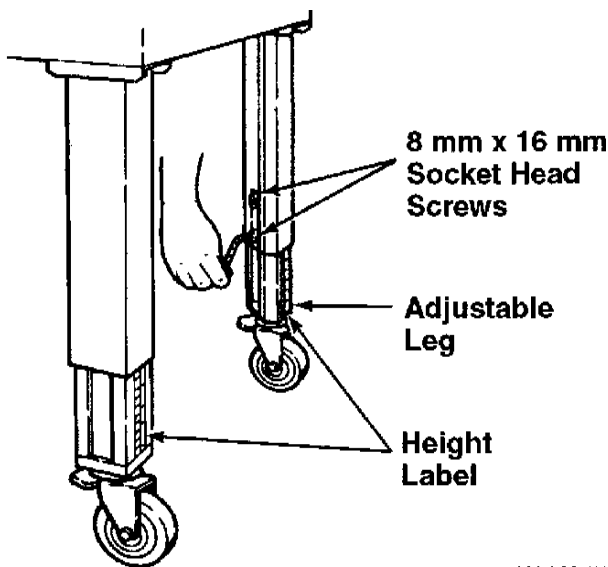
#### 3-1. Case Sealer Bed Height

##### Specification

Adjust the case sealer bed height so that it is the same height as the conveyor line to which it is attached.

##### Adjustment

1. Raise and support the case sealer frame to allow adequate leg adjustment.
1. Using a 6 mm hex key wrench, loosen, but do not remove, two M8 x 16 mm socket-head cap screws in one leg. Refer to Figure 3-1.



**Figure 3-1. Bed Height Adjustment**

3. Using the height label as a guide, adjust the leg length to the desired conveyor bed height. Retighten the two screws to secure the leg.
4. Adjust the five remaining legs in the same way.

### 3-2. Pneumatic Device Factory Set Points

Table 3-1 lists the factory set points for regulator pressure controls, Pneumatic Control Panel mounted speed controls, and cylinder mounted speed controls. The table also describes the location of each adjustment.

**Table 3-1. Pneumatic Device Factory Set Points and Adjustment Locations**

<b>Regulator Pressure Controls</b>		
<b>Regulator Pressure Controls</b>	<b>Set Value</b>	<b>Adjustment Location</b>
Main Input Air Pressure	95 PSIG	Air On/Off Valve/Filter/Regulator and gauge assembly
Box Centering Pressure	50 PSIG	Regulator – Underside of Pneumatic Control Panel, extreme right
Side Belt Pressure	40 PSIG	Regulator – Underside of Pneumatic Control Panel, second from extreme right
Paddle Pressure	7 PSIG	Regulator – Underside of Pneumatic Control Panel, third from extreme right
Box Counter-Balance Pressure	40 PSIG	Regulator – Underside of Pneumatic Control Panel, extreme left
To increase air pressure, turn the regulator knob clockwise (CW). To decrease air pressure, turn the regulator knob counterclockwise (CCW). There is an air pressure gauge label located on the front of the Pneumatic Control Panel referencing the gauges located on the top of the panel.		
<b>Pneumatic Control Panel Mounted Speed Controls</b>		
<b>Air Rate Exhaust Restriction Controls (Speed Controls)</b>	<b>Set Value</b>	<b>Adjustment Location</b>
Centering Arms OUT	6 turns CCW	Upper (OUT) of two restriction controls – Top of Pneumatic Control Panel, extreme right
Centering Arms IN	11 turns CCW	Lower (IN) of two restriction controls – Top of Pneumatic Control Panel, extreme right
Side Belts OUT	9 turns CCW	Upper (OUT) of two restriction controls – Top of Pneumatic Control Panel, center
Side Belts IN	6 turns CCW	Lower (IN) of two restriction controls – Top of Pneumatic Control Panel, center
Head DOWN	11 turns CCW	Lower (DOWN) of two restriction controls – Top of Pneumatic Control Panel, extreme left
Head UP	15 turns CCW	Upper (UP) of two restriction controls – Top of Pneumatic Control Panel, extreme left
All adjustments are made from the fully closed position. Loosen the locking nut and turn the brass knurled screw fully CW, then turn the screw CCW the number of turns specified above.		

**Table 3-1. Pneumatic Device Factory Set Points and Adjustment Locations (Continued)**

<b>Cylinder Mounted Speed Controls</b>		
<b>Air Rate Exhaust Restriction Controls (Speed Controls)</b>	<b>Set Value</b>	<b>Adjustment Location</b>
Infeed Gate UP	3/4 of turn CCW	On Gate Cylinder – Underside of entrance end of case sealer
Infeed Gate DOWN	Not applicable	No control device is present
Fork UP	12 turns CCW	On Fork Cylinder cap end – Remove center conveyor bed to expose cylinder
Fork DOWN	13 turns CCW	On Fork Cylinder rod end – Remove center conveyor bed to expose cylinder
Folder Arm EXTEND	11 turns CCW	On Folder Arm Cylinder rod end – Through access holes in Arm Assembly cover
Folder Arm RETRACT	5 turns CCW	On Folder Arm Cylinder cap end – Through access holes in Arm Assembly cover
Rear Flap Folder EXTEND	16 turns CCW	On Rear Flap Folder Cylinder rod end – Through access holes in Folder Assembly cover
Rear Flap Folder RETRACT	10 turns CCW	On Rear Flap Folder Cylinder cap end – Through access holes in Folder Assembly cover
All adjustments are made from the fully closed position. Use a standard straight edge screwdriver or loosen the knurled ring nut and adjust the thumbscrew fully CW, then turn the thumbscrew CCW the number of turns specified above.		

**3-3. Main Air Pressure Regulator**

**Specification**

The case sealer requires a compressed air supply of 75 – 140 PSIG [5.2 – 9.5 BAR] 7.0 SCFM [11.89 m<sup>3</sup>/h, 21°C, 101 kPa] maximum at maximum cycle rate.

The optimum operating set point on the gauge is 95 – 100 PSIG.

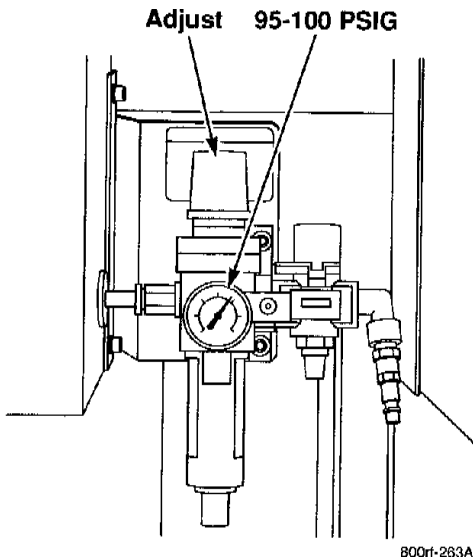
**Adjustment**

✓ **Note**

If the pressure is lower than that specified, check the input pressure at the source. If the source pressure is lower than 75 PSIG [5.2 BAR], there is not enough pressure to operate the case sealer properly. Also note that the inner diameter and length of the incoming air supply can affect final air pressure and recovery rate SCFM.

If the pressure at the source is between 75 – 140 PSIG (this is the maximum pressure shown on the gauge), make the following adjustment.

1. Refer to Figure 3-2. Adjust the Main Air Pressure Regulator to read 95 – 100 PSIG (CW – increases pressure, CCW – decreases pressure).



**Figure 3-2. Main Air Pressure Regulator Adjustment**

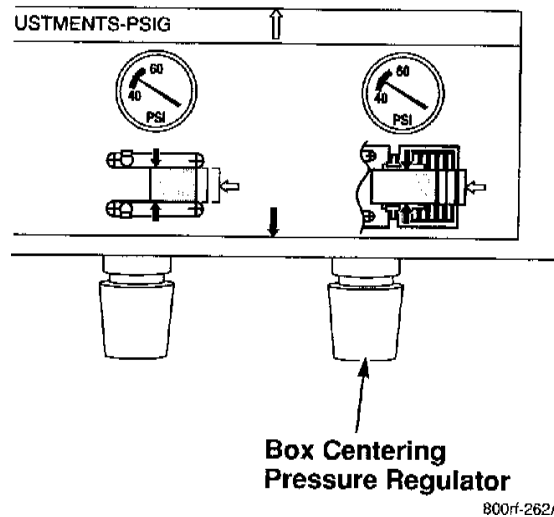
**3-4 . Box Centering Pressure Regulator**

**Specification**

The Box Centering Pressure Regulator should be set to permit positive centering of the various weights of boxes the customer is using. Set the pressure to provide sufficient centering force without creating excessive drag. Keep in mind the maximum box weight capacity (filled) is 65 pounds, and the minimum weight must be sufficient to hold the case on the conveyor bed with the bottom flaps flat.

**Adjustment**

1. Refer to Figure 3-3. Adjust the Box Centering Pressure Regulator on the underside of the Pneumatic Control Panel (CW – increases pressure, CCW – decreases pressure). Observe the Box Centering Pressure Gauge on the top of the panel.

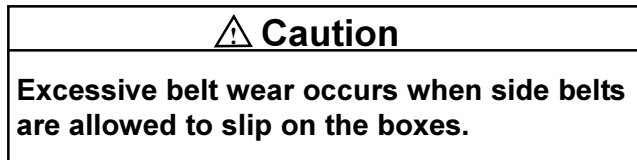


**Figure 3-3. Box Centering Pressure Regulator Adjustment**

### 3-5. Side Belt Pressure Regulator

#### Specification

The side belt pressure should be set so that cases are driven smoothly through the sealing process by the belts without the cases being deformed by excessive side pressure.

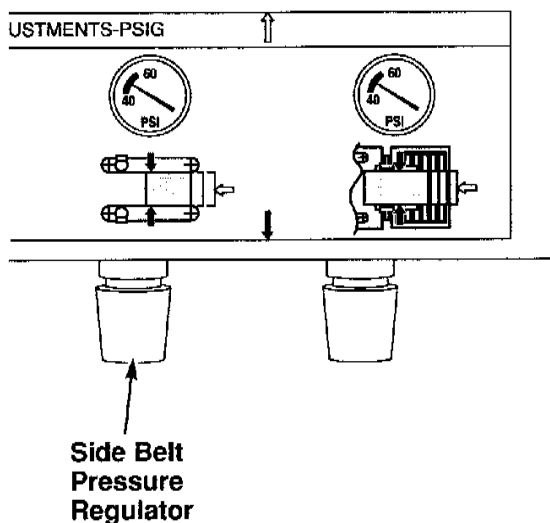


#### Adjustment

1. Refer to Figure 3-4. Adjust the Side Belt Pressure Regulator on the underside of the Pneumatic Control Panel so that the gauge reads 40 PSIG with the Main Air Pressure Regulator set correctly (CW – increases pressure, CCW – decreases pressure). Observe the Side Belt Pressure Gauge on the top of the panel.

#### ✓ Note

Air pressure can be reduced for light-weight cases. Adjust side belt pressure so that the cases are centered and are driven smoothly.



**Figure 3-4. Side Belt Pressure Regulator Adjustment**

### 3-6. Side Belts Closure Drive Chain

*This is not a routine adjustment. Normally, it is necessary only after major disassembly or repair of related components.*

#### Specification

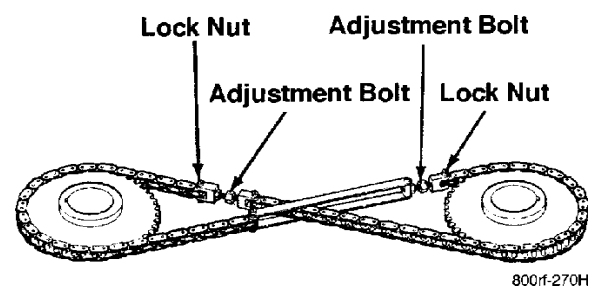
Adjust the side belts closure drive chain so that the side drive belts are equally spaced from the center of the case sealer bed at their outermost position. The tension of the drive chain must be tight enough to ensure smooth inward drive.

#### Adjustment

1. Remove the case sealer bed plates as described in Section 4-6, Case Sealer Bed Plates.
2. Refer to Figure 3-5. Loosen the lock nuts on the drive chain.
3. Turn the adjustment bolts to obtain the proper position and tension.

#### ✓ Note

If correct belt position cannot be obtained by means of the adjustment bolts, remove the chain and reposition it.



**Figure 3-5. Side Belts Closure Drive Chain Adjustment**

4. Reinstall all parts removed in step 1.

**3-7. Side Belts In/Out Rates**

*This is not a routine adjustment. Normally, it is necessary only after major disassembly or repair of related components.*

**Specification**

Adjust the Side Belt IN/OUT speed flow controls to allow the side belts to move to the center of the case sealer bed at approximately the same speed as they return to their outer position. The rate of closure (IN) is the primary measure of a good speed. It must be slow enough to help center but not bounce a small box, and not so slow as to reduce the overall production rate.

**✓ Note**

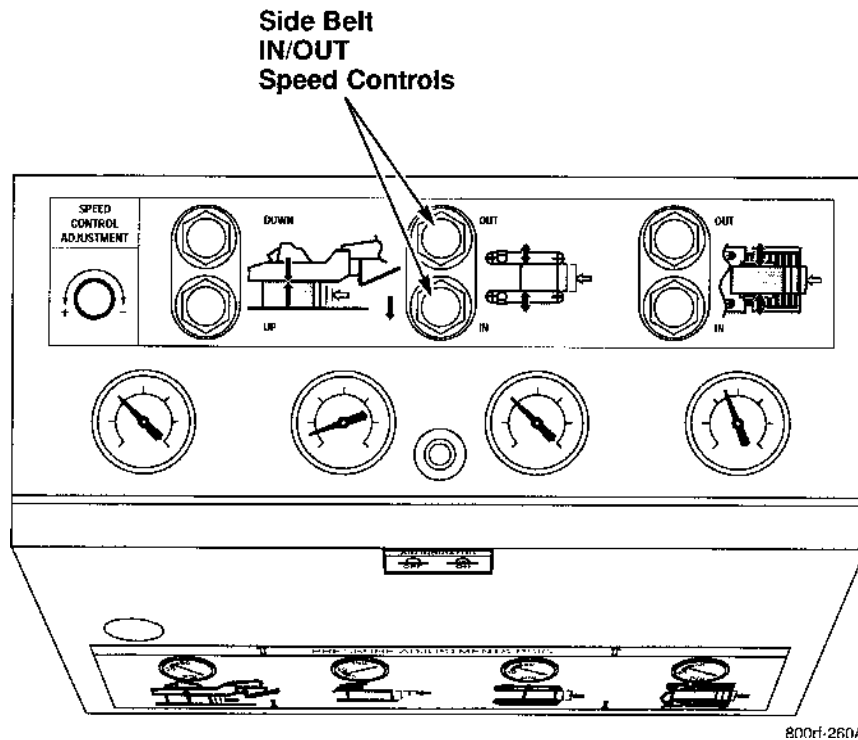
If the side belts do not return (move OUT) from the center of the case sealer bed when no box is present, refer to Section 3-8, Side Belt Inner Limit, before proceeding.

**Adjustment**

1. Pass an average size box through the case sealer.
2. Observe the rates of side belt closure and return.
3. Adjust the Side Belt IN/OUT speed control valves, as shown in Figure 3-6 (CW – decreases speed, CCW – increases speed). These controls are located on the top of the Pneumatic Control Panel.

**✓ Note**

If there is any confusion as to where to set the speed control valves, turn the valves fully CW and then turn the OUT control 9 full turns CCW and turn the IN control 6 full turns CCW. Refer to Table 3-1, Pneumatic Device Factory Set Points and Adjustment Locations.



**Figure 3-6. Side Belt IN/OUT Rate Adjustment**

**3-8. Side Belt Inner Limit**

*This is not a routine adjustment. Normally, it is necessary only after major disassembly or repair of related components.*

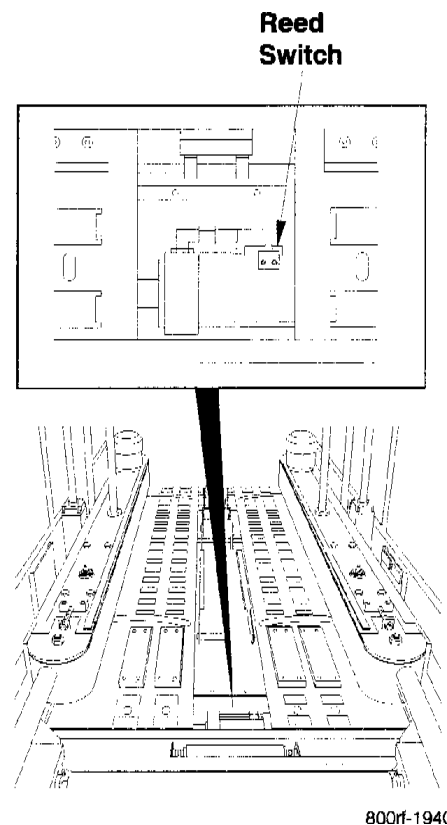
**Specification**

With no box in the case sealer, adjust the side drive belt assembly inner limit reed switch so that the assembly closes to the center of the case sealer bed. All side drive belt motors stop and the assembly returns to its outermost position.

**Adjustment**

1. Raise the upper head assembly to its uppermost position by setting the mode selector switch to RANDOM and pressing the RESET button.
2. Turn off the main air valve and the electrical disconnect switch.
3. Refer to Section 4-6, Case Sealer Bed Plates, and remove the center roller assembly.
4. Turn on the main air valve and the electrical disconnect switch. Press the RESET button then the START
5. Block the light path from PC1 and then PC3. Blocking the light path of PC3 causes the side drive belt assembly to move in to the center. This closes the limit reed switch on the assembly movement cylinder. The switch closing initiates an input to the Programmable Controller resulting in a fault condition, which causes the assembly to return to its outermost position.

6. If the side drive belt assembly does not move to its outermost position, press the STOP button. The assembly will move out so the following adjustment can be made.
7. Refer to Figure 3-7. Using a 2 mm hex wrench loosen the screws on the reed switch. Move the switch to the right in increments until, when tested as described earlier, the assembly returns to its outermost position.
8. Replace the center roller assembly.



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**Figure 3-7. Side Belt Inner Limit Adjustment**

### 3-9. Side Belt Tension

*This is not a routine adjustment. Normally, it is necessary only after major disassembly or repair of related components.*

#### Specification

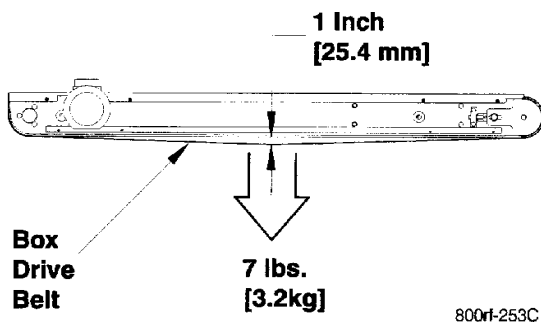
Adjust the tension of the side belts so that the cases move through the machine positively and the belts wrap tightly around the surface of the idler pulleys at each end of the frame.

#### ⚠ Warning

**Turn all electrical power off and disconnect the power cord from the power outlet before doing this adjustment.**

#### Measurement

1. Turn the case sealer off and disconnect the power cord.
2. Use a force gauge to pull each side belt outward 1 inch [25.4 mm], near its mid-span. The gauge should read 7 lb. [3.2 kg]. Refer to Figure 3-8.

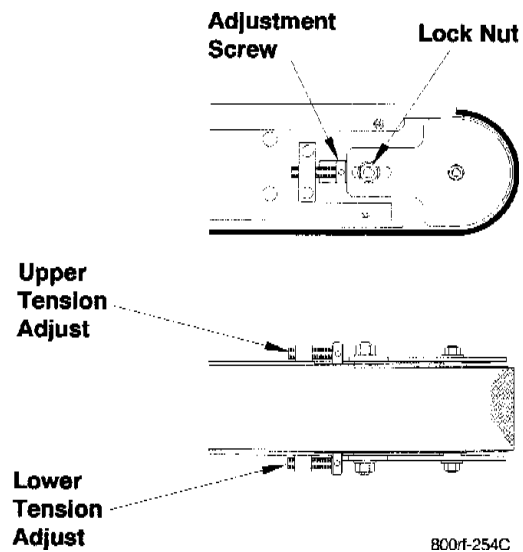


**Figure 3-8. Side Belt Tension Test Adjustment**

#### ⚠ Caution

**In the following adjustment, be sure to adjust BOTH belt tension assemblies.**

1. Remove the side drive belt assembly. (Refer to Section 4-3, Side Drive Belt Assembly.)
2. Loosen the lock nuts on both the upper and lower belt tension assemblies. Refer to Figure 3-9.



**Figure 3-9. Side Belt Tension Adjustment**

3. Turn the adjustment screws equally on both the upper and lower belt tension assemblies. Turn the screws CW to decrease belt tension; CCW to increase belt tension.

#### ✓ Note

If you decrease belt tension, be sure to push the idler (end) pulley inward, toward the adjustment screws, before tightening the lock nuts.

4. Tighten both the upper and lower lock nuts.



### 3-10. Motor Drive Belts, Upper and Lower

*This is not a routine adjustment. Normally, it is necessary only after major disassembly or repair of related components.*

#### Specification

Adjust the motor drive belts to maintain proper belt tension.

#### Adjustment

#### ▲ Warning

Turn the main air supply and electrical power off before making this adjustment.

1. Remove the cover from the side drive belt assembly. Refer to Figure 3-10.

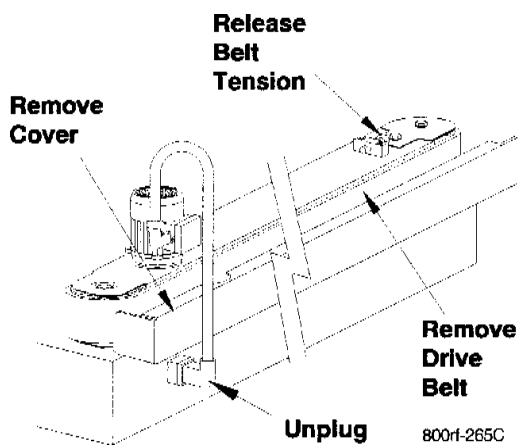


Figure 3-10. Side Belt Removal

2. Unplug the drive motor using the quick-disconnect plug.
3. Release side belt tension. Refer to Section 3-9, Side Belt Tension.
4. Remove the side drive belt.

5. Loosen, but do not remove, the four screws securing the motor to its base. Refer to Figure 3-11.

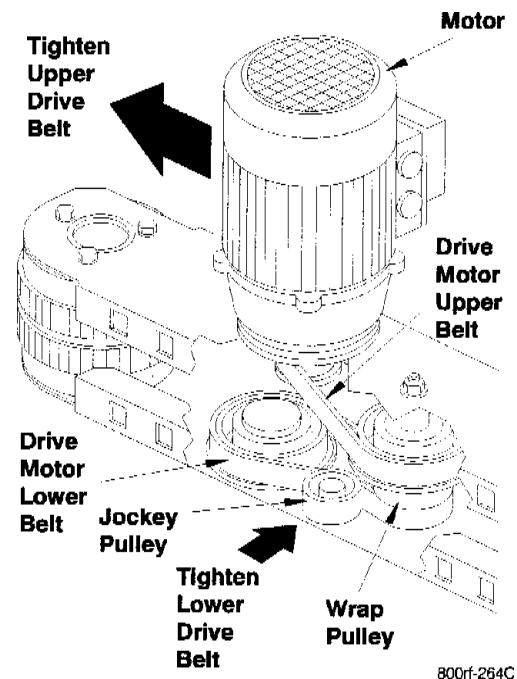


Figure 3-11. Motor Drive Belts Adjustment

6. Loosen, but do not remove, the lower self-locking nut on the jockey pulley.
7. Move the jockey pulley toward the belt to tighten the drive motor lower belt. Secure the lower self-locking nut on the jockey pulley.
8. Move the drive motor toward the exit end of the case sealer to tighten the drive motor upper belt. Tighten the four motor mounting screws.
9. Reinstall the side drive belt and adjust the belt tension as described in Section 3-9, Side Belt Tension.
10. Reinstall the belt cover and reconnect the drive motor power plug.

### 3-11. Drive Chain

*This is not a routine adjustment. Normally, it is necessary only after major disassembly or repair of related components.*

#### Specification

There is no exact chain tension specification. Adjust the chain so that it is just tight enough to drive reliably without slack.

#### Adjustment

Loosen three bolts, adjust the chain, and retighten the bolts. Refer to Figure 3-12.

#### ✓ Note

If you adjust the drive chain, it is also necessary to adjust the upper and lower motor drive belts. Refer to Section 3-10, Motor Drive Belts, Upper and Lower.

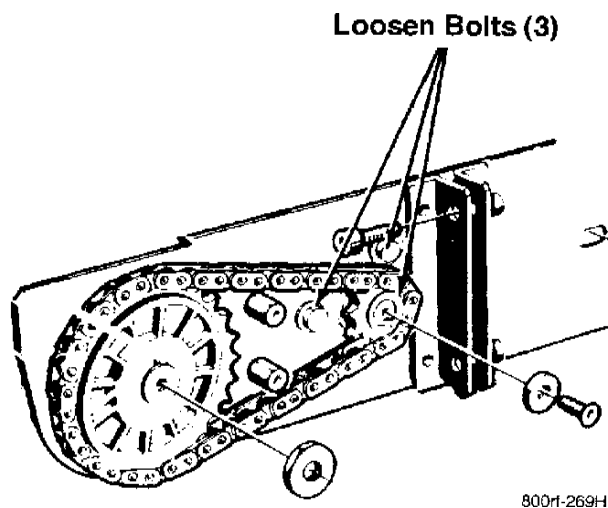


Figure 3-12. Drive Chain Adjustment

### 3-12. Safety Door Interlock

*This is not a routine adjustment. Normally, it is necessary only after major disassembly or repair of related components.*

#### Specification

Adjust each door interlock switch so that it de-actuates when the safety door is fully closed and actuates when the safety door is opened slightly.

#### Adjustment

1. Check that all four doors are aligned flush with the door frames, and that each switch actuator mounted on the door fits securely into the red interlock switch.
2. Loosen the two screws securing the interlock switch to the door frame. Refer to Figure 3-13.
3. With the door fully closed, hold the switch actuator and interlock switch firmly together and tighten the screws.
4. Test the door interlock with the electrical power on.
  - a. Open the door. The red E-STOP/SLIDING DOOR indicator lights on the Electrical Control Panel.
  - b. Close the door. The indicator turns off.

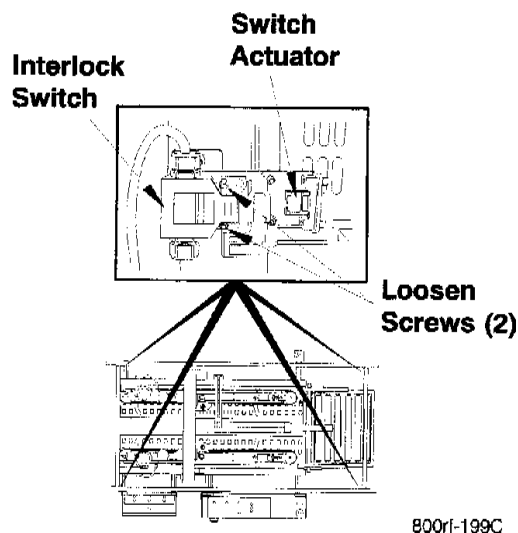


Figure 3-13. Safety Door Interlock Adjustment

### 3-13. Flap Folder Arm and Flap Folder Flow Controls - Speed Controls

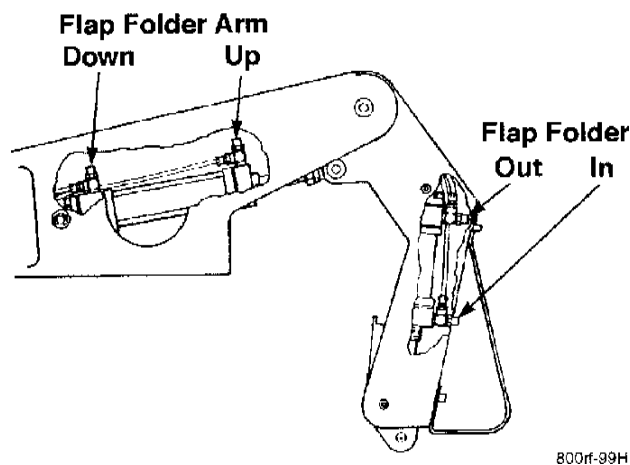
*This is not a routine adjustment. Normally, it is necessary only after major disassembly or repair of related components.*

#### Specification

Adjust the cylinder-mounted speed flow controls for optimum stroke operation. Consider a smooth cylinder extension and retraction without banging at the end of either motion.

#### Adjustment

The Flap Folder Arm Cylinder and the Flap Folder Cylinder both have speed flow controls located at each end of the cylinders; one control at the cap end, and one control at the rod end. Refer to Figure 3-14.



**Figure 3-14. Flap Folder Arm and Flap Folder Speed Control Adjustments**

1. Adjust the Flap Folder Arm Cylinder speed flow controls (CW – decreases speed, CCW – increases speed).
  - a. Adjust the cap end to control the speed of the retract (down) motion.
  - b. Adjust the rod end to control the speed of the extend (up) motion.
2. Adjust the Flap Folder Cylinder speed flow controls (CW – decreases speed, CCW – increases speed).
  - a. Adjust the cap end to control the speed of the retract (out to fold flap) motion.
  - b. Adjust the rod end to control the speed of the extend (in to home position) motion.

---

#### ✓ Note

If there is any confusion as to where to set the speed flow controls, turn the adjusting screws fully CW. Flap Folder Arm Cylinder – turn the cap-end screw 5 full turns CCW and turn the rod-end screw 11 full turns CCW. Flap Folder Cylinder – turn the cap-end screw 10 full turns CCW and turn the rod-end screw 16 full turns CCW. Refer to Table 3-1, Pneumatic Device Factory Set Points and Adjustment Locations (Cylinder Mounted Speed Controls).

---

### 3-14. Flap Folder Arm Reed Switch

*This is not a routine adjustment. Normally, it is necessary only after major disassembly or repair of related components.*

#### Specification

The factory set position of the circular bracket that holds the reed switch to the Flap Folder Arm Cylinder wall is approximately 2.5 inches from the cap end of the cylinder. When the switch signals an output, the Flap Folder Cylinder activates and the Flap Folder moves downward, folding the rear flap of the box inward.

#### Adjustment

1. Observe when the Flap Folder activates. It should begin to move downward when the Flap Folder Arm is about midway between fully extended and fully retracted. Refer to Figure 3-15.
2. Loosen the screw securing the switch bracket and move the reed switch and bracket toward the rod end of the cylinder to activate the Flap Folder sooner. Move the switch and bracket toward the cap end of the cylinder to activate the Flap Folder later.
3. When the reed switch is set correctly, tighten the screw securing the switch bracket. Avoid switch movement while doing this.

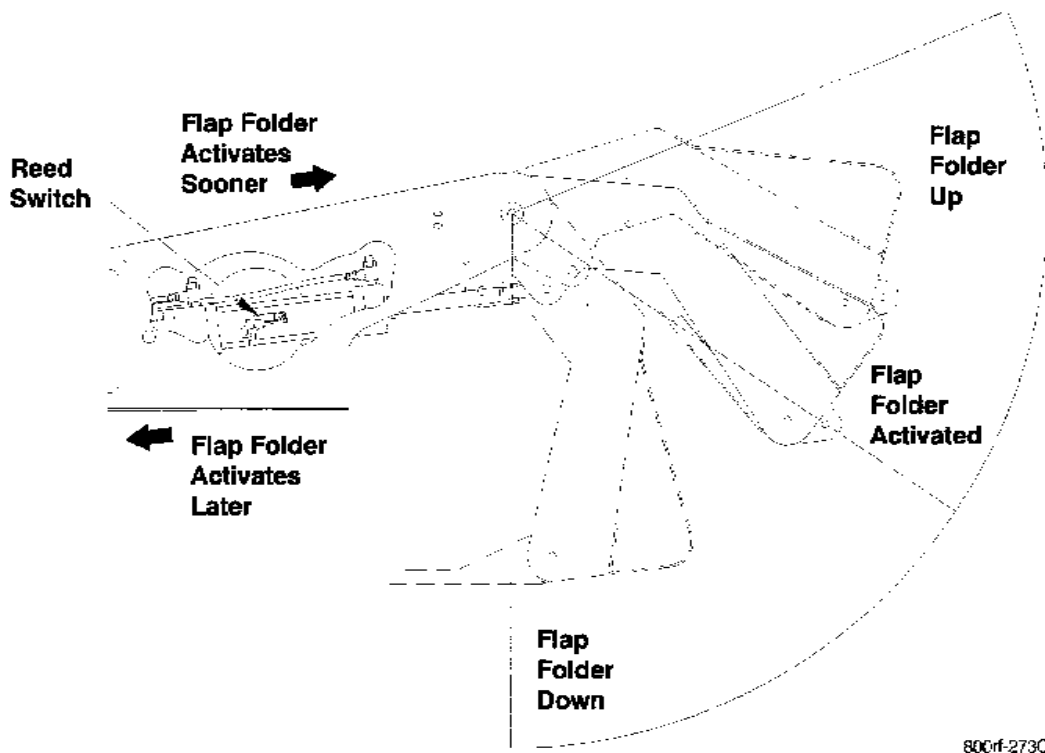


Figure 3-15. Flap Folder Arm Reed Switch Adjustment

### 3-15. Cylinder Cushion Setting

#### ✓ Note

This is a generic approach to adjusting the cylinder cushion settings for all cylinders used in the 800rf Case Sealer.

*This is not a routine adjustment. Normally, it is not necessary to adjust the cylinder cushion settings unless a new cylinder is installed to replace an original component.*

#### Specification

Adjust cushion settings so that the cylinder does not bottom out hard at the end travel of its stroke.

#### Adjustment

Set the cylinder cushions for the setting that allows proper operation as described in the above specification. Typically, these are factory set and do not need to be adjusted.

1. Refer to Figure 3-16 for adjusting screw locations. This is a generic view for all cylinders used in the 800rf Case Sealer.
2. Turn the adjusting screws fully CW (closed).
3. Adjust by turning the screws 1/8 to 1/4 turn CCW.

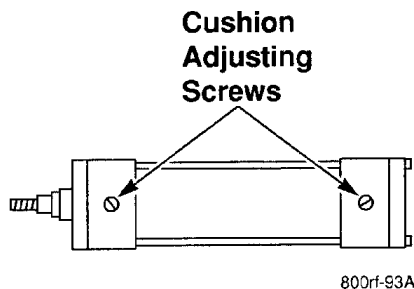


Figure 3-16. Cushion Adjusting Screw Locations

### 3-16. Paddle Pressure Regulator

#### Specification

The Paddle Pressure Regulator should be set so that as the paddle makes contact with the top of the carton when the upper head assembly descends, it does not overtravel and deform the carton.

#### Adjustment

1. Refer to Figure 3-17. Adjust the Paddle Pressure Regulator on the underside of the Pneumatic Control Panel so the gauge reads 7 PSIG with the Main Air Pressure Regulator set correctly (CW – increases pressure, CCW – decreases pressure). Observe the Paddle Pressure Gauge on the top of the panel.

#### ✓ Note

Too much pressure results in excessive drag on the top of the carton or deforming of the carton.

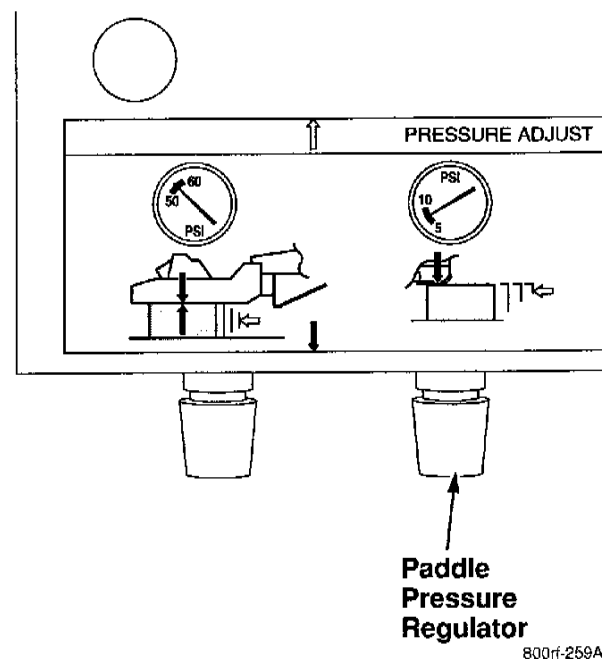


Figure 3-17. Paddle Pressure Regulator Adjustment

**3-17. Counter-Balance Pressure Regulator**

**Specification**

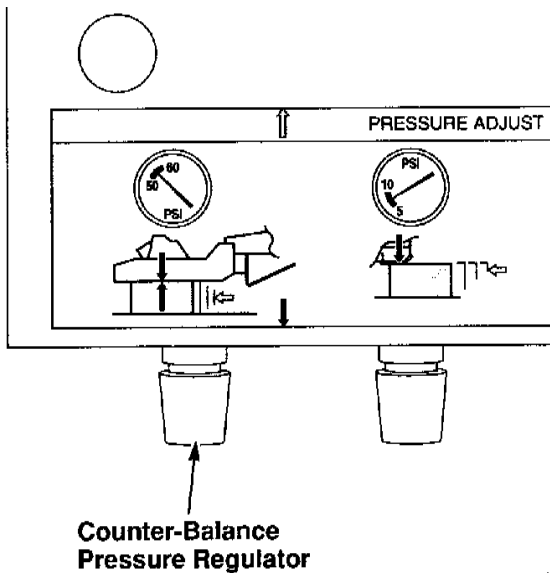
The Counter-Balance Pressure Regulator should be set so the upper head assembly comes to a stop between 0 and 1/8 inch from the top of the carton.

**Adjustment**

1. Refer to Figure 3-18. Adjust the Counter-Balance Pressure Regulator on the underside of the Pneumatic Control Panel so the gauge reads 40 PSIG with the Main Air Pressure Regulator set correctly (CW – increases pressure, CCW – decreases pressure). Observe the Counter-Balance Pressure Gauge on the top of the panel. **Higher gauge pressure means more pressure on top of the carton.**
1. Observe production and examine cartons that have been run.

✓ **Note**

Too little pressure results in tape being cut improperly or not being cut at all (head too high above box). Too much pressure results in dragging and scoring on the top of the cartons (head too low).



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**Figure 3-18. Counter-Balance Pressure Regulator Adjustment**

**3-18. Case Top Sensitivity**

**Specification**

Adjust the case top sense reed switch so that the head lowers just enough to ensure that the side flaps are held securely against the top of the case during the taping operation. The downward pressure of the top taping head must not be great enough to distort the box in any way.

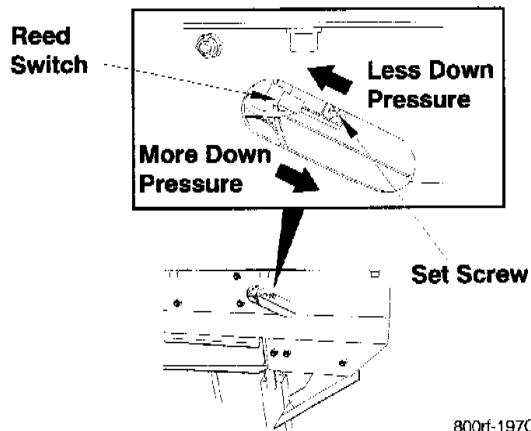
**Adjustment**

1. Slide the safety door fully open to gain access to the reed switch.
2. Loosen the set screw securing the reed switch and move the switch toward the infeed end of the case sealer to decrease sensitivity (increase pressure on the top of the case). Move the switch toward the exit end of the case sealer to increase sensitivity (decrease pressure on the top of the box). Refer to Figure 3-19. (The switch is located inside the paddle assembly.)

✓ **Note**

The normal position for the case top sense reed switch is almost fully toward the infeed end of the case sealer.

3. When the case top sensitivity is correct, tighten the set screw securing the reed switch. Avoid switch movement while doing this.



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**Figure 3-19. Case Top Sensitivity Adjustment**

### 3-19. Fork Lift Flow Controls-Speed Controls

*These cylinder-mounted speed flow controls are factory set and normally do not need adjusting unless related components are replaced.*

#### Specification

Adjust the Fork Cylinder speed flow controls so that:

1. The fork automatically moves down to its horizontal position before case movement forces it down.
2. The fork returns to its upright vertical position before the side belts begin to move inward to receive the next carton.
3. Fork movement occurs without banging or rebound.

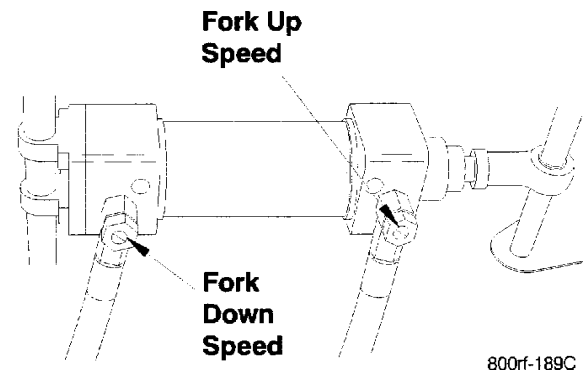
#### Adjustment

Before making any adjustments on these speed flow controls, the Main Air Pressure Regulator must be set correctly.

1. Remove the center conveyor bed as described in Section 4-6, Case Sealer Bed Plates.
2. Refer to Figure 3-20. Adjust the Fork Cylinder speed flow controls (CW – decreases speed, CCW – increases speed).
  - a. Adjust the cap end to control the speed of the retract (fork down) motion.
  - b. Adjust the rod end to control the speed of the extend (fork up) motion.
3. Replace the center conveyor bed.

#### ✓ Note

If there is any confusion as to where to set the speed flow controls, turn the adjusting screws fully CW, then turn the cap-end screw 12 full turns CCW and turn the rod-end screw 13 full turns CCW. Refer to Table 3-1, Pneumatic Device Factory Set Points and Adjustment Locations (Cylinder Mounted Speed Controls).



**Figure 3-20. Fork Speed Control Adjustment**

**3-20. Infeed Box Stop-Gate Flow Control-Speed Control**

*This cylinder-mounted speed flow control is factory set and normally does not need adjusting unless the cylinder is replaced.*

**Specification**

Adjust the Infeed Box Stop-Gate Cylinder speed flow control for optimum stroke operation. Consider a smooth cylinder extension without banging or rebound.

**Adjustment**

1. Access the Infeed Box Stop-Gate Cylinder from the underside of the infeed end of the case sealer.
2. Adjust the speed flow control (CW – decreases speed, CCW – increases speed).

---

**✓ Note**

If there is any confusion as to where to set the speed flow control, turn the adjusting screw fully CW, then turn the screw 3/4 of a turn CCW. Refer to Table 3-1, Pneumatic Device Factory Set Points and Adjustment Locations (Cylinder Mounted Speed Controls).

---



### 3-21. Box Centering Rails In/Out Rates

*This is not a routine adjustment. Normally, it is necessary only after major disassembly or repair of related components.*

#### Specification

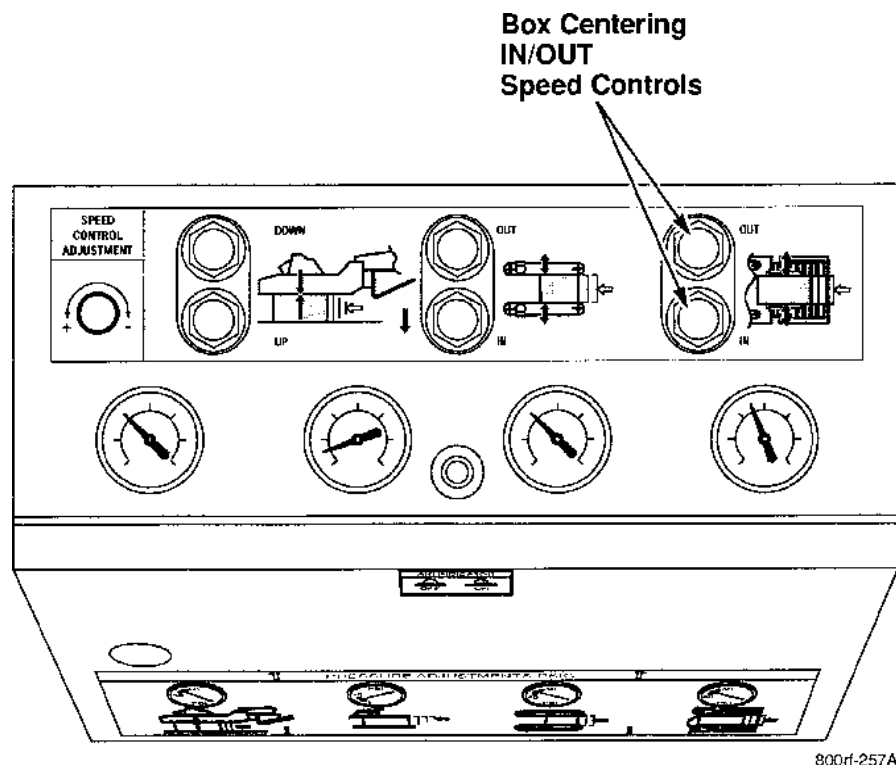
Adjust the Box Centering IN/OUT speed flow controls to allow the centering rails to close (move IN) and center the carton, then release (move OUT) and open to their home position at approximately the same speed. The rate of closure (IN) is the primary measure of a good speed. It must be slow enough to center but not bounce a small box, and not so slow as to reduce the overall production rate.

#### Adjustment

1. Pass some average size boxes through the case sealer.
2. Observe the speed of the centering rails closure (IN) and return (OUT).
3. Adjust the Box Centering IN/OUT speed control valves, as shown in Figure 3-21 (CW – decreases speed, CCW – increases speed). These controls are located on the top of the Pneumatic Control Panel, extreme right.

#### ✓ Note

If there is any confusion as to where to set the speed control valves, turn the valves fully CW and then turn the OUT control 6 full turns CCW and turn the IN control 11 full turns CCW. Refer to Table 3-1, Pneumatic Device Factory Set Points and Adjustment Locations (Pneumatic Control Panel Mounted Speed Controls).



**Figure 3-21. Box Centering Rails IN/OUT Rate Adjustment**

### 3-22. Upper Head Assembly Down/Up Rates

*This is not a routine adjustment. Normally, it is necessary only after major disassembly or repair of related components.*

#### Specification

Adjust the Upper Head DOWN/UP speed flow controls to allow the Upper Head Assembly to descend and raise smoothly and without banging, causing undue wear to the Upper Head Assembly and its cylinders.

#### Adjustment

1. Pass some average size boxes through the case sealer.
2. Observe the speed at which the Upper Head Assembly descends (DOWN) and raises (UP).
3. Adjust the Upper Head Assembly speed control valves, as shown in Figure 3-22 (CW – decreases speed, CCW – increases speed). These controls are located on the top of the Pneumatic Control Panel, extreme left.

#### ✓ Note

If there is any confusion as to where to set the speed control valves, turn the valves fully CW and then turn the DOWN control 11 full turns CCW and turn the UP control 15 full turns CCW. Refer to Table 3-1, Pneumatic Device Factory Set Points and Adjustment Locations (Pneumatic Control Panel Mounted Speed Controls).

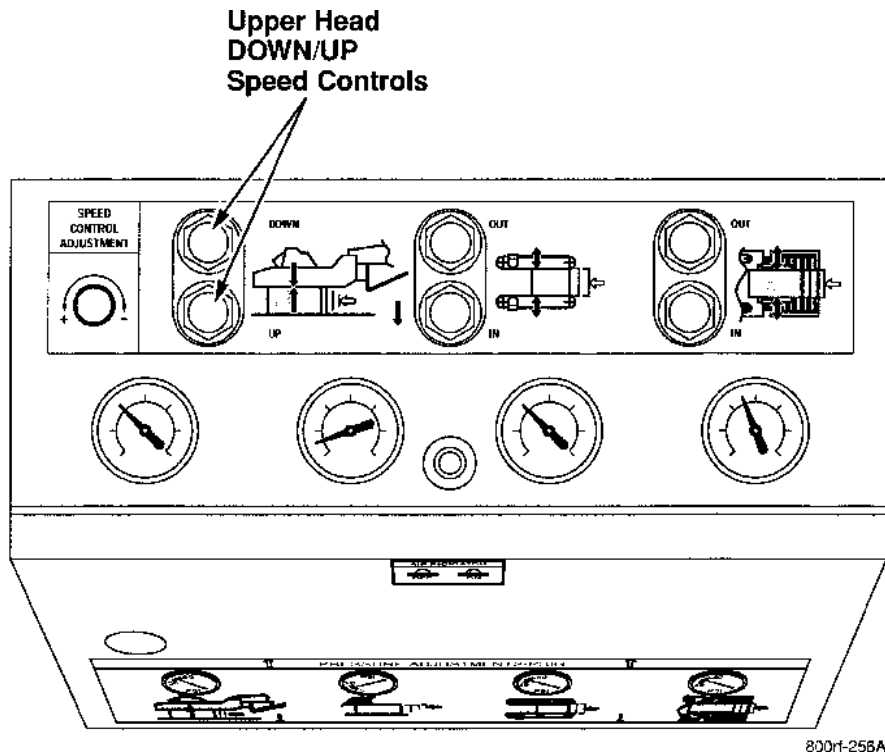


Figure 3-22. Upper Head Assembly DOWN/UP Rate Adjustment

### 3-23. Top Flap Compression Rollers

#### Specification

Adjust the top flap compression rollers to hold the top flaps of the case together during the taping process. The flaps should not overlap or have space between them after the taping process.

#### Adjustment

1. Adjust all compression rollers inward to hold the top of the box more securely. Refer to Figure 3-23.
2. Adjust all compression rollers outward if the box binds.

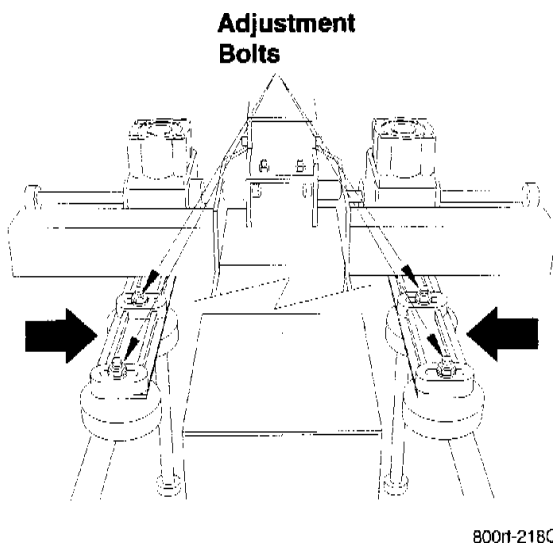


Figure 3-23. Top Flap Compression Rollers Adjustment

### 3-24. Tape Web Alignment

#### Specification

Position the tape drum shaft so that the tape is centered on the centerline of the taping head.

#### Adjustment

The tape drum assembly on each taping head is pre-set to accommodate 2 inch [48 mm] wide tape, but is adjustable to handle narrower tapes. To center the tape width on the centerline of the taping head, make the adjustment as follows:

1. Use an adjustable wrench or a 25 mm open-end wrench to loosen the locking hex nut on the tape drum shaft behind the tape drum bracket. Refer to Figure 3-24.
2. Use a 5 mm hex key wrench to turn the tape drum shaft CW (in) or CCW (out) to center the tape web on the centerline of the taping head.

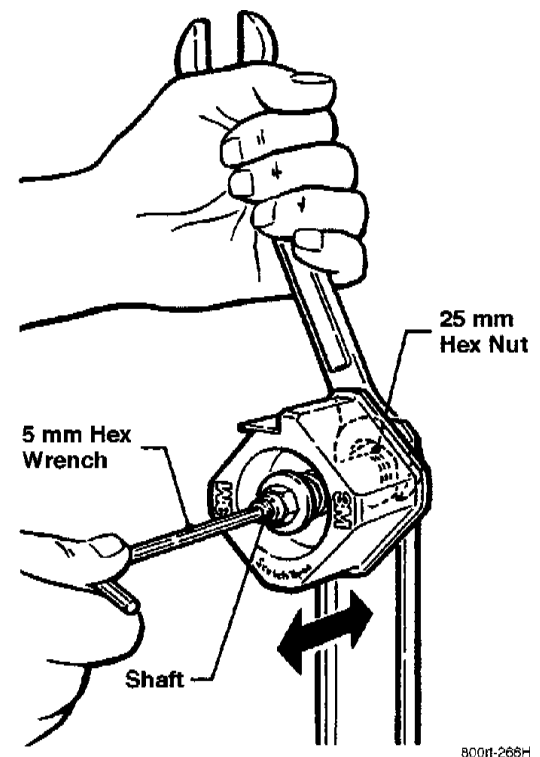


Figure 3-24. Tape Web Alignment Adjustment

3. Tighten the locking hex nut to secure the shaft in this new position.

**3-25. Tape Drum Friction Brake**

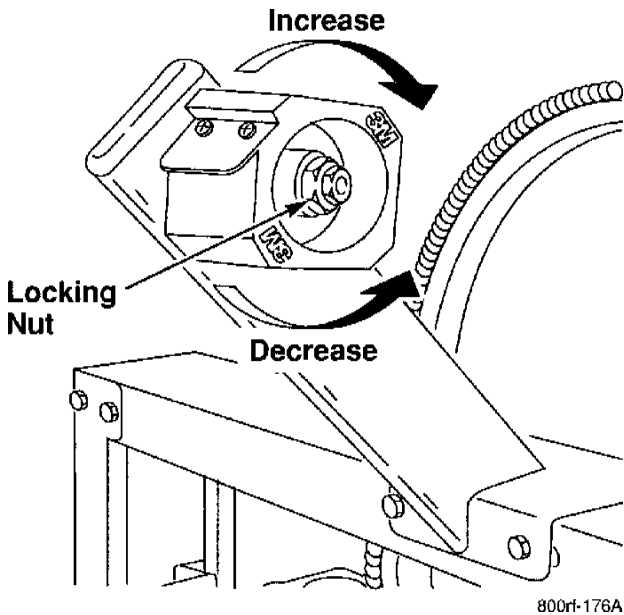
**Specification**

Adjust the tape drum friction brake to prevent excessive tape overtravel caused by a flywheel effect.

**Adjustment**

1. Refer to Figure 3-25. Turn the self-locking nut on the shaft to adjust the braking force (CW – increases braking force, CCW – decreases braking force).
2. Adjust the friction brake for the minimum braking force that prevents excessive overtravel.

✓ <b>Note</b>
Excessive braking force causes poor tape application and may lead to tape tabbing on the trailing tape leg.



**Figure 3-25. Tape Drum Friction Brake Adjustment**

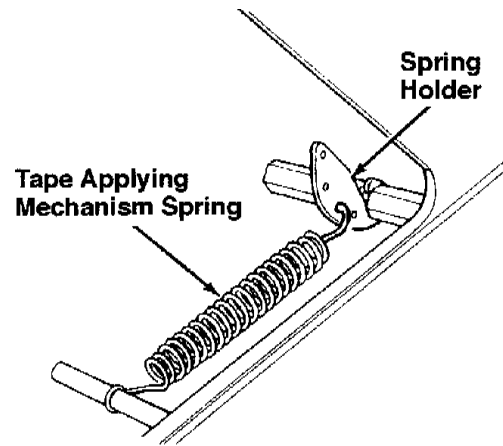
**3-26. Tape Applying Mechanism Spring**

**Specification**

Adjust the position of the tape applying mechanism spring so there is sufficient pressure to seal the box, and after sealing the box, the tape buffering roller returns to its rest position.

**Adjustment**

1. To gain access to the spring, remove the taping head cover (four mounting screws).
2. Increase or decrease the pressure applied by the tape applying mechanism spring by removing the end loop from the spring holder and moving it to another hole. Refer to Figure 3-26.
3. If a tape gap appears on the trailing surface of the box, increase the spring pressure.
4. If the front of the box is being crushed by the applying roller, decrease the spring pressure.



**Figure 3-26. Tape Applying Mechanism Spring Adjustment**

5. Replace the taping head cover (four mounting screws).

### 3-27. One-Way Tension Roller

#### Specification

Adjust the one-way tension roller so that it **slips** under a tangential force of 1 to 2 lbs. [0.5 to 0.9 kg]. Refer to Figure 3-27.

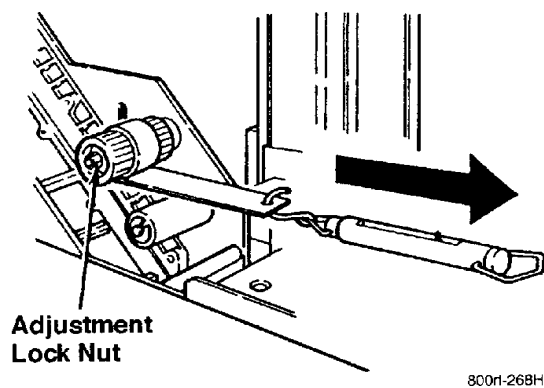


Figure 3-27. One-Way Tension Roller Adjustment

#### Measurement

1. Wrap a cord or small strap (non-adhesive) 4 to 6 turns around the tension roller.
2. Attach a spring scale to the end of the cord or strap.
3. Pull the spring gauge until the one-way tension roller slips. The spring gauge should read 1 to 2 lbs [0.5 to 0.9 kg] when slippage occurs.

#### Adjustment

Turn the self-locking adjusting nut to adjust the holding force (CW – increases holding force, CCW – decreases holding force).

**3-28. Low Air Pressure Switch****Specification**

Adjust the Low Air Pressure Switch so the case sealer shuts down if the main air pressure drops below 50 PSIG and a box feed is attempted.

**✓ Note**

All adjustments to the Low Air Pressure Switch must be made with the Main Air On/Off Valve in the Off position.

**Measurement**

1. Set the Main Air Pressure Regulator Gauge to read 50 PSIG.
2. With the electrical power and air pressure connected, start the machine by pressing the RESET button and then the START button.

The case sealer side drive motors should NOT start and the red RESET lamp should light.

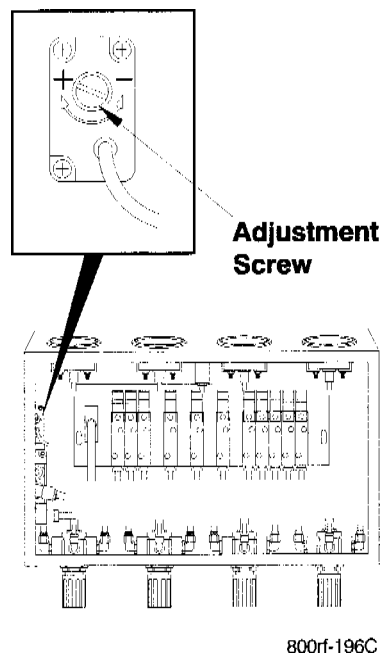
3. Set the Main Air Pressure Regulator Gauge to read 95 PSIG.
4. Start the machine by pressing the RESET button and then the START button.

The case sealer should operate properly (RUN light is on, motors are on, and side belts are rotating). You should be able to convey a carton through the machine and have it successfully seal the top and bottom seams of the carton.

**Adjustment**

1. Turn the Main Air On/Off Valve to the Off position.
2. Locate the adjusting screw on top of the Low Air Pressure Switch and turn it fully CCW until it stops, being careful not to damage the adjusting screw. Refer to Figure 3-28.
3. Preset the adjusting screw by turning it 9 full turns CW.

4. Connect the electrical power and air pressure, turn the On/Off Air Valve to the On position, and set the Main Air Pressure Regulator Gauge to read 50 PSIG.
5. Press the RESET button and then the START button. If the case sealer motors do not start, the switch is set properly.
6. If the case sealer motors start at 50 PSIG, the Low Air Pressure Switch is set too high and adjustment is necessary.
  - a. Turn the Main Air On/Off Valve to the Off position.
  - b. Turn the Low Air Pressure Switch adjusting screw CCW by 1/2-turn increments and repeat steps 4 and 5 until the motors do not start.
7. Reset the Main Air Pressure Regulator Gauge to read 95 PSIG and perform a final operational test by running a carton through the case sealer.



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**Figure 3-28. Low Air Pressure Switch Adjustment**

### 3-29. Overload Circuit Breaker

#### Specification

Adjust the setting screw on the Overload Circuit Breaker to the 1.4 Amp setting.

#### Adjustment

Use a Phillips-head screwdriver to set the alignment mark to the 1.4 Amp setting. Refer to Figure 3-29.

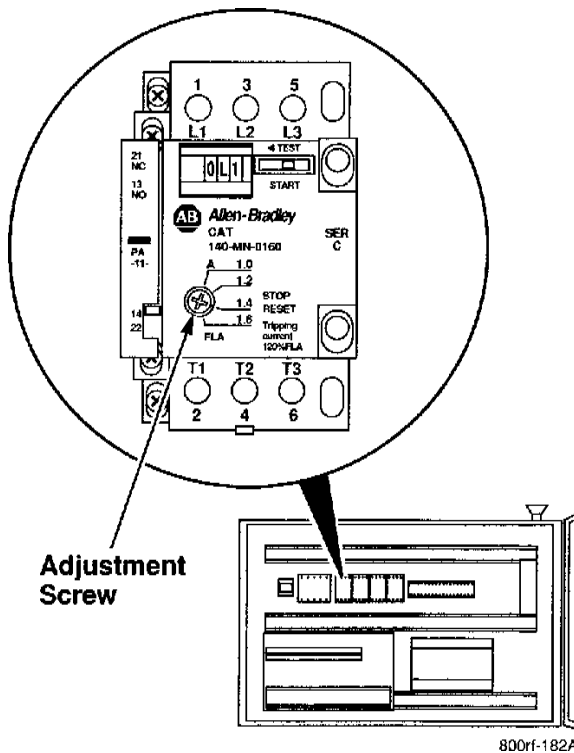


Figure 3-29. Overload Circuit Breaker Adjustment

### 3-30. Head Travel Limit Switch

#### Specification

Adjust the Head Travel Limit Switch located on the rear head raising cylinder so when the head is at the rest position, it is approximately 3 inches above the highest box being run.

#### Adjustment

1. Loosen the two securing screws. Refer to Figure 3-30.
2. Move the switch up or down as required.
3. Tighten the screws.
4. Check the head rest position.
5. Repeat steps 1 through 4 until the head rest position is approximately 3 inches above the highest box being run.

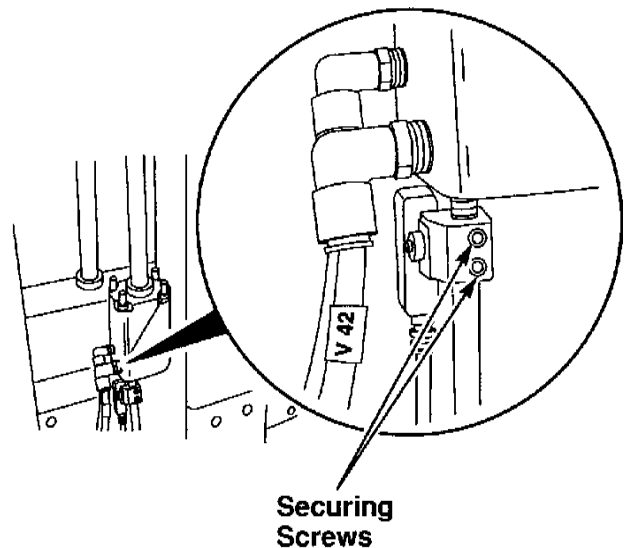


Figure 3-30. Head Travel Limit Switch Adjustment

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## 4. Disassembly/Reassembly

### 4-1. General

This section provides instructions for removing components and major assemblies from the Model 800rf Type 39800 Case Sealer. Disassembly should be done only to replace a faulty part. Be sure the component is out of tolerance as defined in Section 3, Adjustments, before assuming it is worn or defective.

### 4-2. Format

Many of the disassembly procedures in this section are illustrated views with a minimum of supporting text. The order of disassembly is indicated by circled numbers with 1 being the first step, 2 the second step, and so on. Reassembly is done in the reverse order of disassembly.

Carefully review and understand each procedure before the disassembly of any component. Often, reference to the exploded view in Section 7, Illustrated Parts Breakdown, aids disassembly and subsequent reassembly.

#### **▲ Warning**

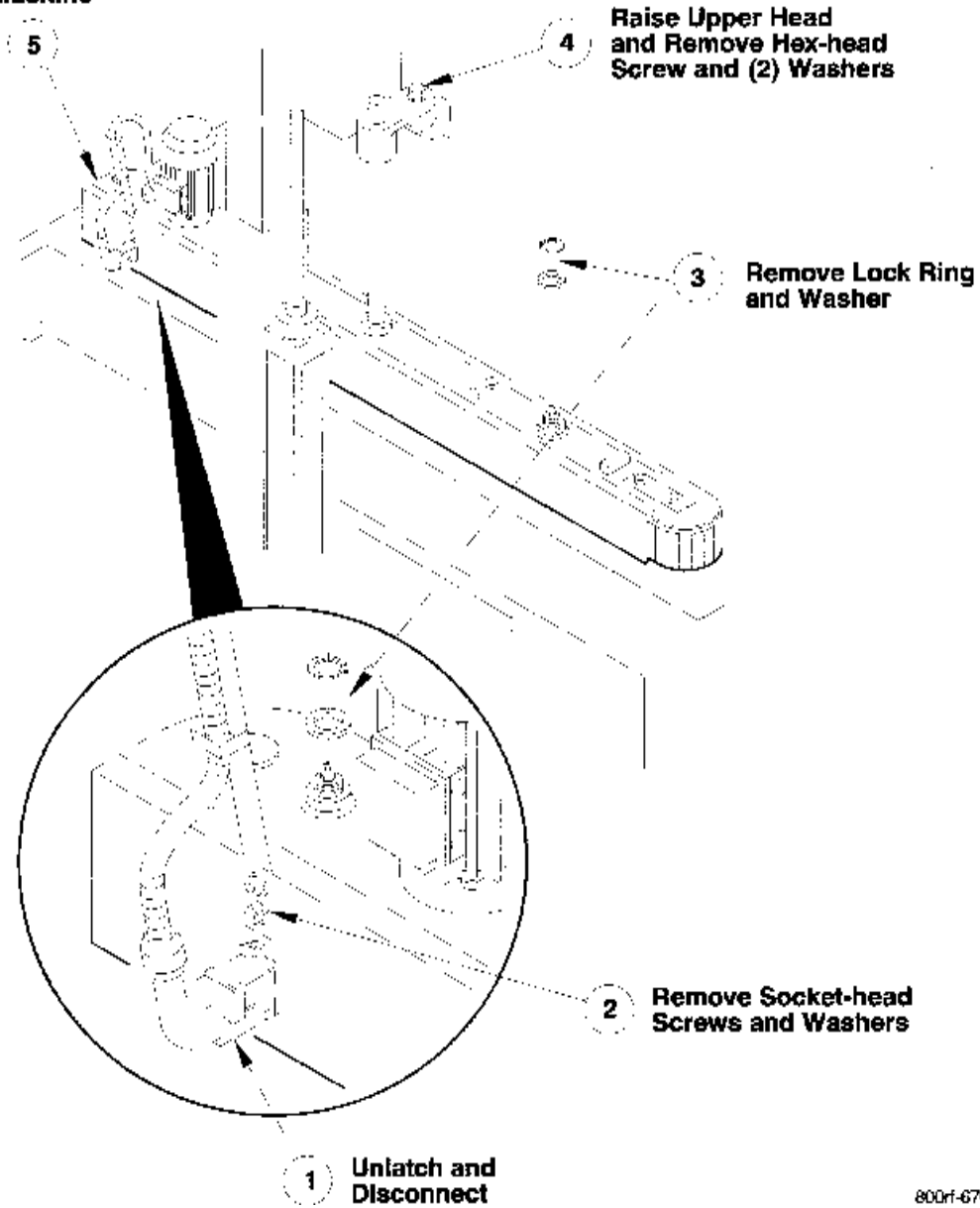
**Turn off the main air supply and electrical power before removing any components.**

4-3. Side Drive Belt Assembly

**⚠ Warning**

Turn off the main air supply and electrical power before removing any components.

Lift Entire Assembly and Remove from Either End of Machine



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#### 4-4. Side Drive Belt

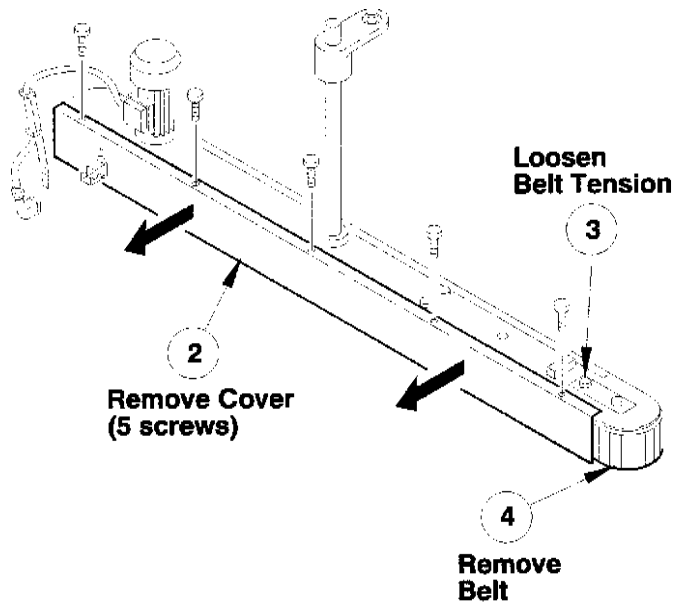
### ⚠ Warning

Turn off the main air supply and electrical power before removing any components.

1. Remove the side drive belt assembly using Procedure 4-3 in this section.

### ✓ Note

If the side drive belt being removed is without pin and lacing, the belt must be cut to remove it. A replacement side drive belt with pin and lacing is needed to reassemble the unit.



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5. Install the new drive belt.
6. After installing the new belt, adjust the side drive belt tension. Refer to Side Belt Tension in Section 3.

#### 4-5. Motor Drive Belts, Upper and Lower

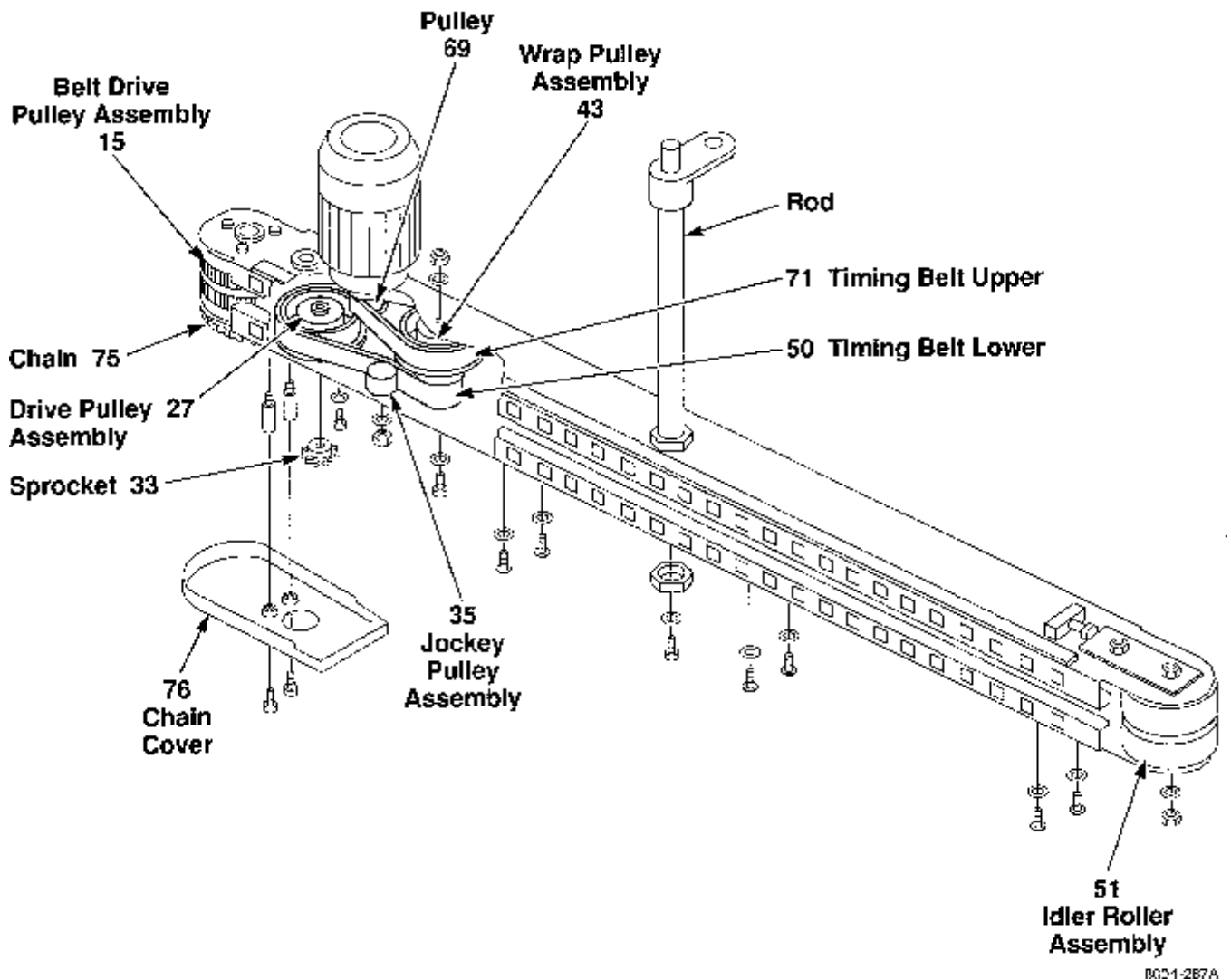
### ▲ Warning

**Turn off the main air supply and electrical power before removing any components.**

#### ✓ Note

A gear puller is needed to complete this procedure. Make sure a gear puller is available before beginning this procedure.

1. Remove the side drive belt assembly using Procedure 4-3 in this section.
2. Remove the side drive belt using Procedure 4-4 in this section.
3. Remove the self-locking nut and the washer from the top of the wrap pulley assembly [43].
4. Remove the bolt and washer from the bottom of the rod. Slide the rod out of the threaded sleeve.
5. Remove the M22 nut from the bottom of the threaded sleeve.
6. Loosen but do not remove the self-locking nut on the jockey pulley assembly [35].
7. Remove the hex-head screw and the washer from the bottom of the wrap pulley assembly [43].
8. Remove the nut and washer from the bottom of the idler roller assembly [51].
9. Remove the two screws holding the chain cover [76] in place and remove the chain cover.
10. Remove the chain [75] by disconnecting the removable link.
11. Remove the two standoffs on which the chain cover [76] is mounted.
12. Remove the screw and washer holding the sprocket [33] on the bottom of the drive pulley assembly [27].
13. Remove the 3/8-inch keyed sprocket [33], using a gear puller, and being careful not to lose the key.
14. Remove the three (3) hex-head bolts and washers holding the drive pulley assembly [27].
15. Remove the drive pulley assembly [27].
16. Remove the six (6) hex head bolts which hold the two halves of the side drive belt assembly together from the bottom of the assembly.
17. Lift the lower half of the side drive belt assembly and move it aside from the upper half, pivoting on the belt drive pulley assembly [15] shaft.
18. Remove the wrap pulley assembly [43].
19. Remove the timing belt(s) to be replaced.
20. To reassemble and reinstall the side drive belt assembly, perform steps 1 through 19 of this procedure in reverse order.
21. When the side drive belt assembly has been reassembled and reinstalled, perform the following adjustment procedures described in Section 3.
  - Motor Drive Belts, Upper and Lower
  - Side Belt Tension

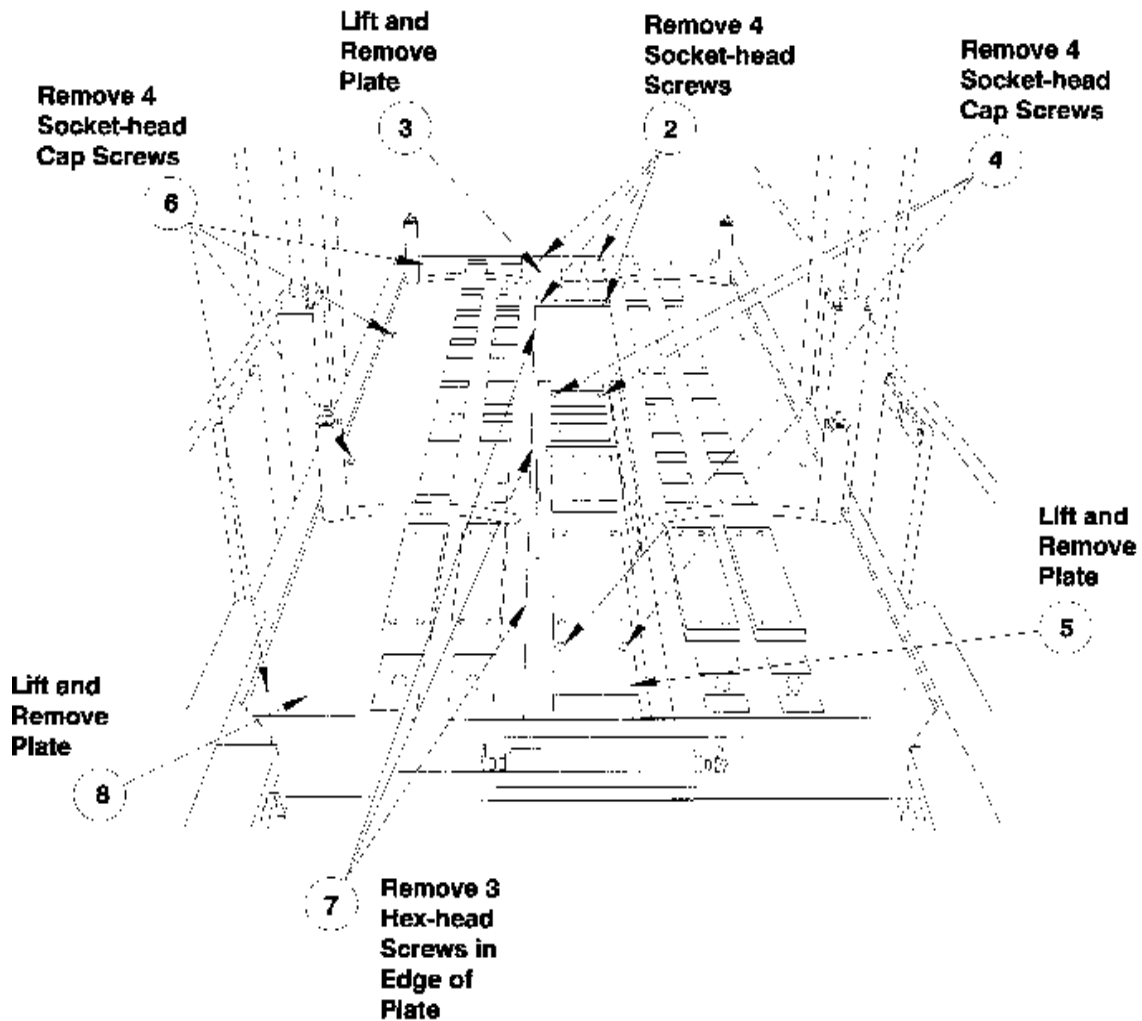


4-6. Case Sealer Bed Plates

**▲ Warning**

Turn off the main air supply and electrical power before removing any components.

1. Remove the side drive belt assembly using Procedure 4-3 in this section.



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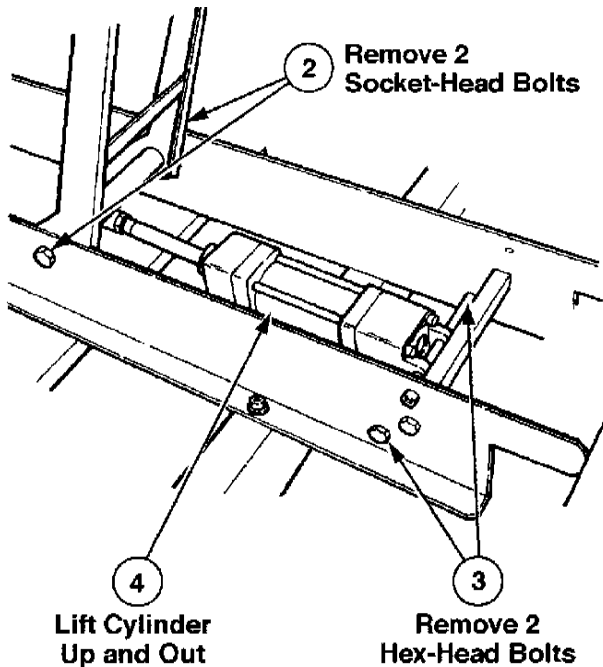


## 4-7. Fork Cylinder

**▲ Warning**

Turn off the main air supply and electrical power before removing any components.

1. Remove the case sealer bed plates using Procedures 4-3 and 4-6 in this section.



5. Remove the associated air lines and hardware from the cylinder.
6. Reassembly requires adjustment of fork speed. Refer to Fork Cylinder Flow Controls – Speed Controls in Section 3.

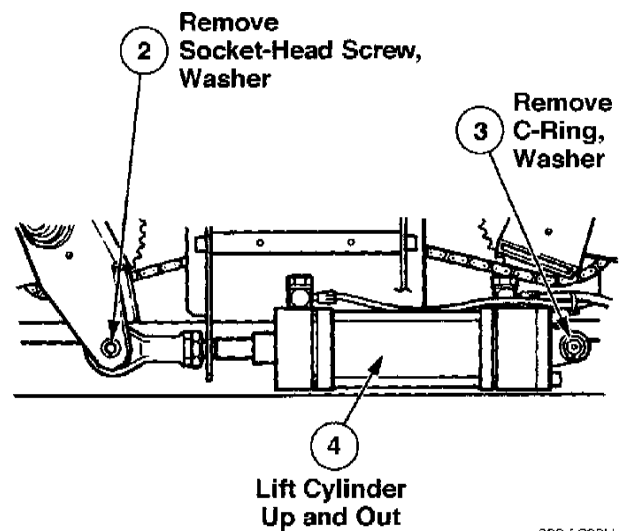
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## 4-8. Side Drive Belts Cylinder

**▲ Warning**

Turn off the main air supply and electrical power before removing any components.

1. Remove the case sealer bed plates using Procedures 4-3 and 4-6 in this section.



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2. Remove the associated air lines and hardware from the cylinder.  
Before removing the limit switch (sensor) attached to the cylinder housing, note the switch position on the cylinder so you can install the switch at the same position on the replacement cylinder. The position of the limit switch affects cylinder extension, timing, etc.
3. Reassembly requires adjustment of side drive belt pressure and side drive belts closure/retract rates. Refer to Side Belt Pressure Regulator and Side Belts In/Out Rates in Section 3.

4-9. Flap Folder Cylinder

**▲ Warning**

**Turn off the main air supply and electrical power before removing any components.**

Steps 1 through 3 on the figure below refer to removal of the Flap Folder Cylinder.

1. Remove associated hardware, air lines, and flow control valves.
2. If a flow control is replaced, adjust the new flow control to match the one removed. Refer to Flap Folder Arm and Flap Folder Flow Controls – Speed Controls in Section 3.

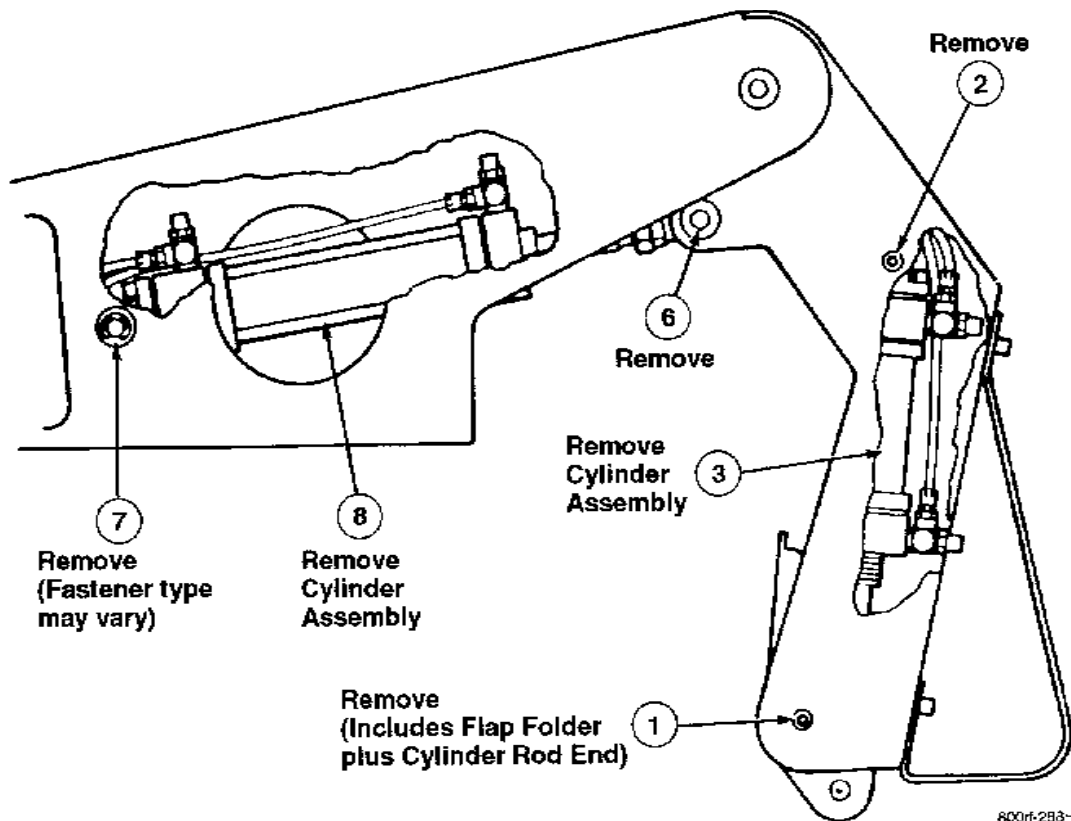
4-10. Flap Folder Arm Cylinder

**▲ Warning**

**Turn off the main air supply and electrical power before removing any components.**

Steps 6 through 8 on the figure below refer to removal of the Flap Folder Arm Cylinder.

1. Remove associated hardware, air lines, and flow controls. Note the position of the limit switch (sensor) attached to the cylinder housing so you can install the switch at the same position on the replacement cylinder. The position of the limit switch affects cylinder extension, timing, etc.
2. If a flow control is replaced, adjust the new flow control to match the one removed. Refer to Flap Folder Arm and Flap Folder Flow Controls – Speed Controls in Section 3.



#### 4-11. Knife Replacement, Upper Taping Head

##### **▲ Warning**

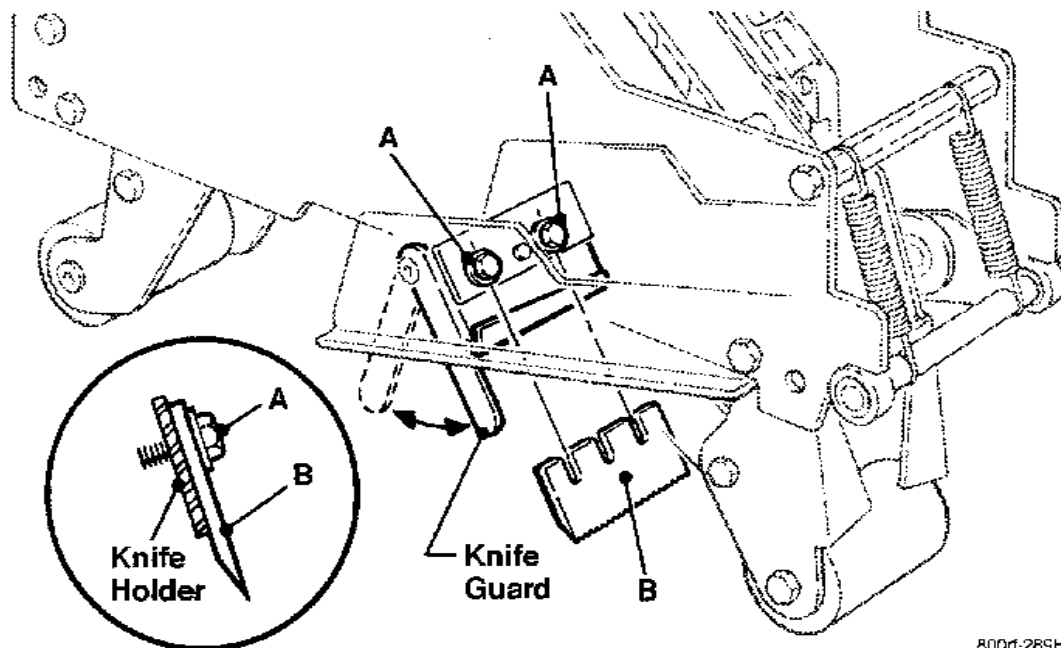
**The Tape Cut-Off Knife is very sharp. To avoid personal injury, handle the knife with special care. Also, disconnect the power before starting this procedure.**

1. Apply air pressure to the machine and raise the upper head assembly to its full upward position.
2. Pivot the knife guard back and hold it in this position, as shown in the figure below.
3. Carefully cover the knife teeth with tape.
4. Loosen, but do not remove, the knife fastening screws [A]. Remove and discard the old knife.
5. Clean the knife mounting bracket.

6. Carefully cover the teeth on the new knife with tape.
7. Position the new knife [B] with the beveled side away from the mounting bracket.
8. Mount the knife so that the screws bottom out in the slots. This position automatically gives the proper mounting and cutting angle.
9. Tighten the screws that secure the knife.
10. Slowly pivot the knife guard back and forth to ensure proper clearance.
11. Remove the tape from the new knife.

##### **▲ Caution**

**Be sure the knife does not interfere with the knife guard.**



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#### 4-12. Knife Replacement, Lower Taping Head

##### **▲ Warning**

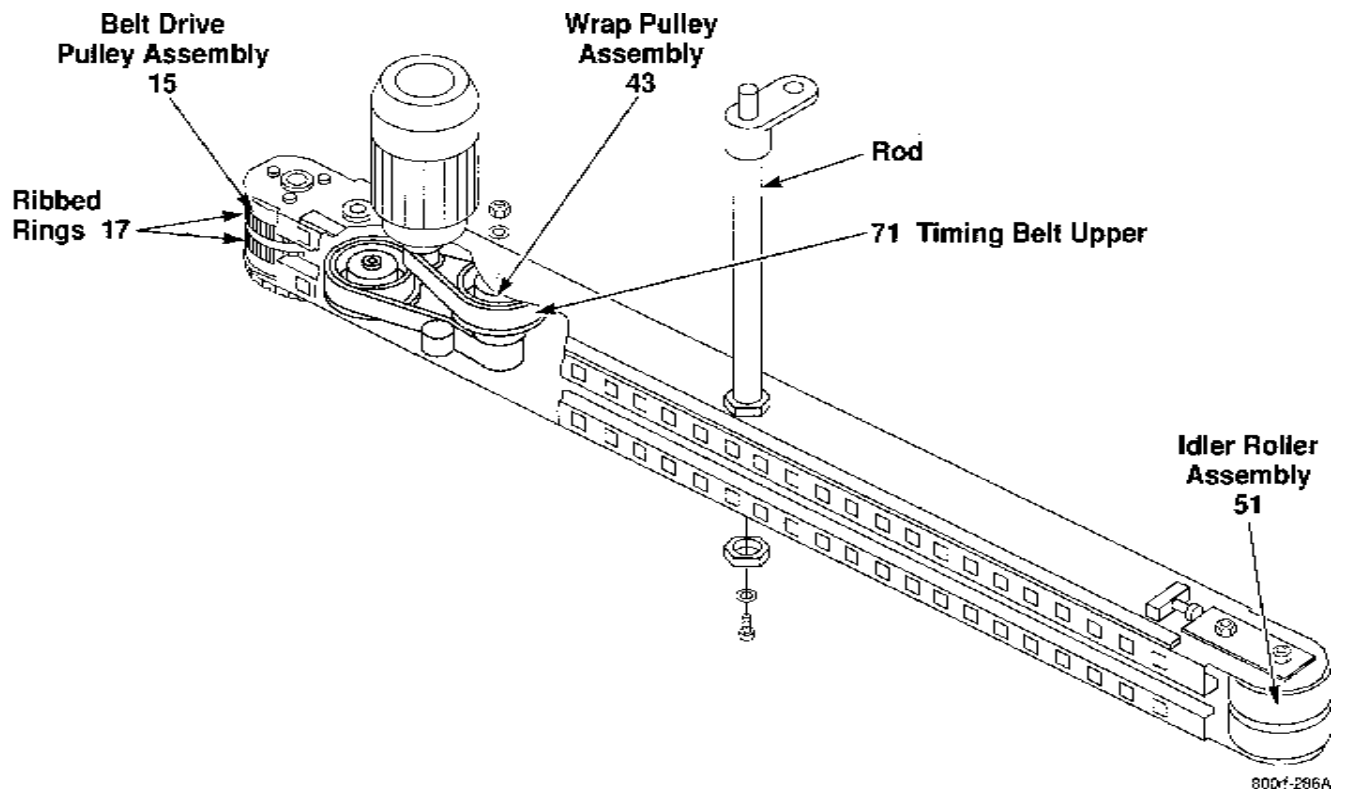
**The Tape Cut-Off Knife is very sharp. To avoid personal injury, handle the knife with special care. Also, disconnect the power before starting this procedure.**

1. Remove the lower taping head from the case sealer and lay it on a flat work surface.
2. Replace the knife using the knife replacement procedure described for the upper taping head; Procedure 4-11 in this section.

#### 4-13. Belt Drive Pulley Assembly Ribbed Rings

1. Remove the side drive belt assembly using Procedure 4-3 in this section.
2. Remove the side drive belt using Procedure 4-4 in this section.
3. Remove the bolt and washer from the bottom of the rod. Slide the rod out of the threaded sleeve.
4. Remove the self-locking nut and the washer from the top of the wrap pulley assembly [43].
5. Remove the nut and washer from the top of the idler roller assembly [51].
6. Remove the M22 nut from the top of the threaded sleeve.
7. Remove the three (3) hex-head bolts and washers from the top of the belt drive pulley assembly [15].
8. Remove the eight (8) hex-head bolts and washers from the upper half of the side drive belt assembly.
9. Lift the upper half of the side drive belt assembly off of the lower half, disengaging the upper timing belt [71], and lay it aside.
10. If necessary, remove the old ribbed rings [17] from the belt drive pulley assembly [15].
11. Slide the replacement ribbed rings [17] into place, ensuring that the ribbed surface faces outward.

12. To reassemble and reinstall the side drive belt assembly, perform steps 1 through 9 in reverse order.
13. When the side drive belt assembly has been reassembled and reinstalled, perform the following adjustment procedures described in Section 3.
  - Motor Drive Belts, Upper and Lower
  - Side Belt Tension



**4-14. Infeed Rollers**

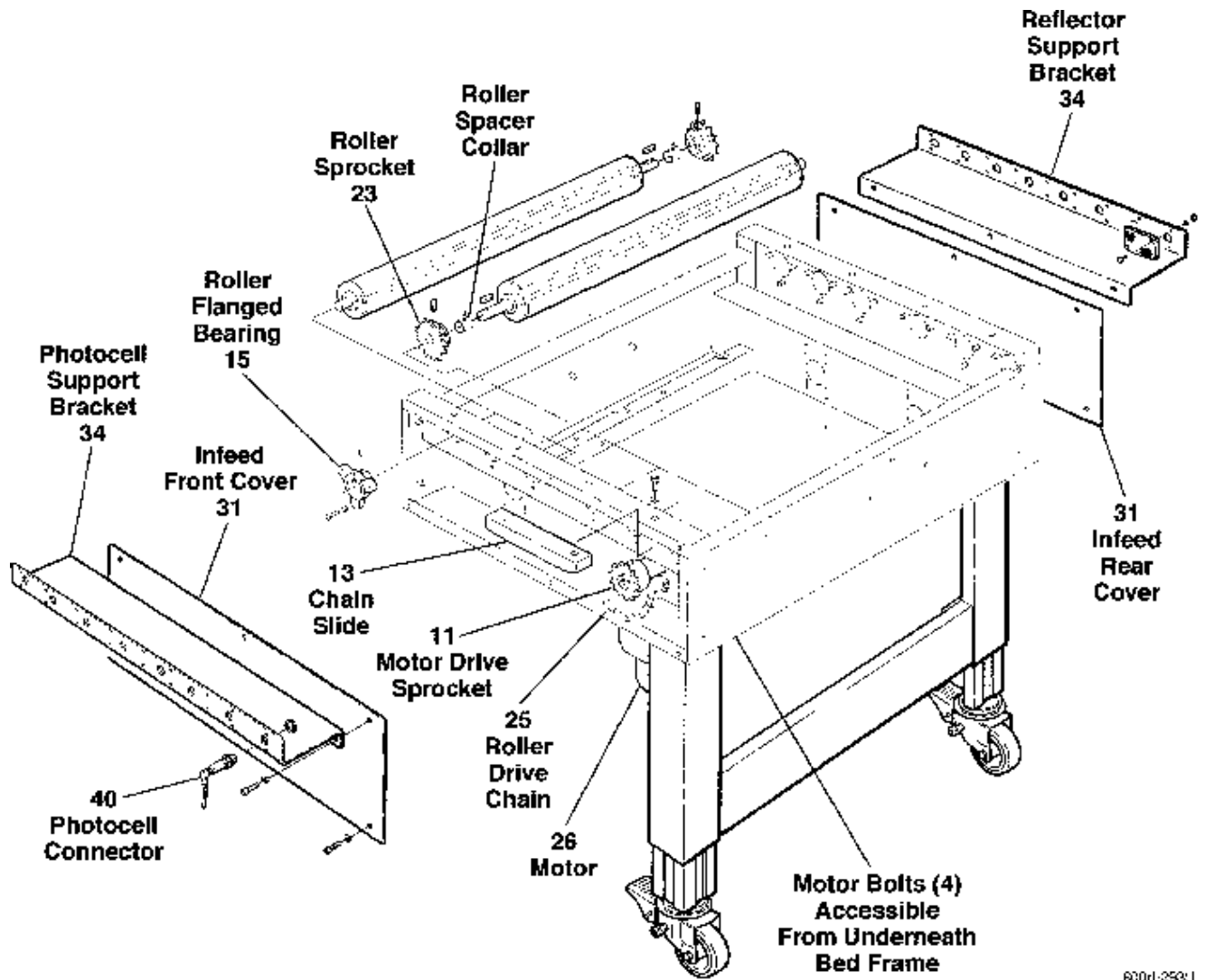
1. Remove the photocell connectors [40] from photocells PC1 and PC2.
2. Remove the front photocell support bracket [34] secured by 3 hex-head screws.
3. Remove the Infeed front side cover [31] exposing the roller drive chain [25], roller sprockets [23], motor drive sprocket [11], and roller flanged bearings [15].
4. Remove the rear photocell reflector support bracket [34] secured by 3 hex-head screws.
5. Remove the Infeed rear side cover [31] exposing the roller drive chain [25], roller sprockets [23], motor drive sprocket [11], and roller flanged bearings [15].
6. Loosen, but do not remove, the four (4) motor positioning hex-head bolts.
7. Move the motor [26] upward providing slack in the chain [25].
8. Tighten the motor bolts to hold the motor in this position.
9. Remove the chain slide [13].
10. If the chain has enough slack, slip it over the motor drive sprocket [11]. If the chain does not have enough slack, locate and remove the master chain link and remove the chain.
11. Identify the roller you are replacing and remove the roller sprocket [23] secured by a hex screw at the keyway.
12. Remove the front and rear roller flanged bearings [15] secured by three (3) hex-head screws each.
13. Loosen the roller spacer collars located on the roller shafts at each end of the roller. Each collar is secured by (2) set screws. Loosen the set screws until the collars turn freely.
14. Slide the roller shaft to the left through the hole created by the bearing removal. Then, lift the right side of the roller up and out of the Infeed frame.
15. Install the new roller by following the reverse order of the disassembly procedure.

---

**✓ Note**

Be sure to align the drive chain. Install the chain taunt around all roller and drive sprockets. Do this by loosening the four (4) motor bolts, moving the motor downward until the chain is taunt with no slack, and then tightening the bolts. Also, be careful when inserting the photocell electrical connectors. Notice that the 4-pin connectors are keyed for proper pin positioning.

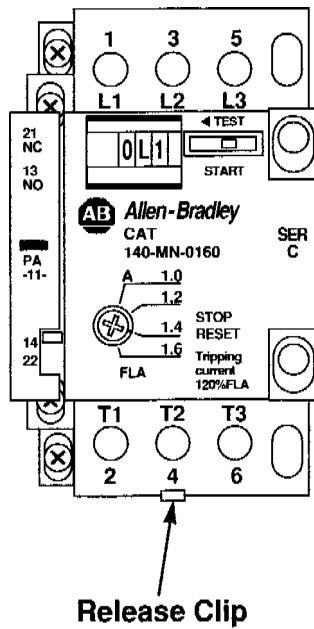
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#### 4-15. Overload Circuit Breaker

1. Pull and hold down on the silver release clip located at the bottom and rear of the circuit breaker. Refer to the figure below.
2. Pull outward on the bottom of the circuit breaker and lift up and away from the DIN rail.



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## 5. Theory of Operation

### 5-1. General

This section begins with an operation summary, which gives an overview of the operations that the Model 800rf Type 39800 Case Sealer performs as it seals a carton. Next, the sequence tables provide a detailed sequence of actions the case sealer performs while operating in Random mode, Fixed mode, or Bypass mode. Then, the electrical system is described, including special circuits and components. The section ends with a description of the pneumatic system.

### 5-2. Operation Summary

The 800rf case sealer runs in three separate modes of operation: Random, Fixed, and Bypass. These operating modes are described in the following subsections.

#### 5-2-1. Random Mode

When a box enters and passes through the case sealer, it passes six photocells in sequence. As the box clears the light path of the first photocell, the infeed gate moves up to prevent the entry of the next box. A pair of centering rails then move inward to center the box on the infeed rollers.

Infeed drive rollers move the box past a second photocell which senses the presence of the box to subsequently control the timing of the side belt restart circuit.

The box continues to move, blocking the light path of the third photocell. This causes the side belt drive assemblies to move inward and press against the sides of the box. The counter adds 1 to the cycle count, and the box is carried forward, blocking the light path of the fourth photocell. The side belt drive motors turn off, and the box stops at the fork beneath the head assembly.

When the box blocks the light path of the fourth photocell, the side belt drive assemblies lock in position, the upper head assembly brakes unlock, and the head assembly begins to move downward. This downward movement continues until a paddle presses against the front flap of the box, folding the flap inward. Downward movement of the head assembly continues until resistance of the box leading edge moves the paddle upward, actuating the box height limit switch. An output from the controller stops downward movement of the head assembly. At this time, the head assembly and paddle lock in position, the fork moves down, and the rear flap-folding process occurs.

Rear flap folding begins with the action of the flap folder arm. As this arm moves downward, an associated limit switch actuates an output from the controller which causes the rear flap folder to move down, folding the rear flap of the box inward.

The timing for the side belt drive motors to start depends on whether the box is short or long. For a short box (second photocell not blocked), the drive motors are delayed momentarily to allow the rear flap to be folded and then the motors turn on. For a long box (second photocell blocked), the side belt drive motors turn on first and then the rear flap is folded when the box clears the second photocell.

The side belt drive assemblies move the box toward the taping heads. As the box moves forward, the side flaps are folded inward and then held in position by compression rollers. The box passes between the taping heads and a C-clip of tape is applied to the top and bottom center seams of the box.

As the box exits the case sealer, it clears the light path of the fifth photocell and the controller “homes” the case sealer, preparing it for the next box. At this time, the flap folder arm and rear flap folder move up, the side belt drive assemblies move out, the paddle moves down, and the upper head assembly raises and locks in the up position.

During normal operation, as the box exits the case sealer it blocks the light path of the sixth photocell momentarily. When the box clears this light path, the controller allows the next box to enter the machine.

If cartons accumulate on the customer's exit conveyor, a box may be blocked and unable to exit the case sealer, or a box may be pushed back into the machine. In either case, the light path of the sixth photocell is blocked. If it remains blocked for more than a few seconds, the infeed gate stays up and the rollers stop, preventing more boxes from being fed into the case sealer until the blockage is removed.

### 5-2-2. Fixed Mode

Use Fixed mode to run boxes through the machine that are all the same height. The upper head assembly stays down and is locked in the position determined by the first box run through the machine in Fixed mode.

The Fixed mode flap folding and box taping processes operate the same as in Random mode. However, the side belt drive assemblies move out at the beginning of the cycle rather than at the end of the cycle. This allows the infeed gate to move down and admit the next box before the previous box has left the side belt drive assemblies.

The time saved by entering the next box early and by not raising and lowering the upper head assembly speed up the throughput of the machine.

### 5-2-3. Bypass Mode

Use Bypass mode to run boxes through the machine without folding the upper flaps or taping them; however, the bottom of the box will be taped. The upper head assembly remains fully raised. In Bypass mode, the infeed gate and side belt drive assemblies operate the same as in Random mode.

## 5-3. Sequence Tables

The sequence tables list specific events, and give the order in which the events occur as a box passes through the machine. Table 5-1 is the sequence table for Random mode, Table 5-2 is for Fixed mode, and Table 5-3 is for Bypass mode.

The table column headings are described below:

### SEQUENCE

This column lists the initial operating conditions, the events that occur when the RESET button is pressed, the condition that initiates each program step, and the events that occur during each program step.

### PLC

This column shows whether the Programmable Logic Controller (PLC) output is latched (PLC output ON) or unlatched (PLC output OFF). An X in this column means the PLC output is ON only for the current step.

### VALVE

This column shows the solenoid valve associated with an event. Solenoid valves are either actuated (PLC output ON) or deactuated (PLC output OFF). Refer to the 800rf Pneumatic Diagram in Section 5-5, Pneumatic System.

### ACTION

This column shows the action associated with an event. For example, an assembly moving in or out.

### OUTPUT

This column shows the PLC output associated with an event. PLC outputs shown in **bold** font are ON (+24 VDC); PLC outputs with a minus sign and regular font are OFF (0 VDC). Refer to the 800rf Electrical Schematic in Section 5-4, Electrical System.

### INPUT

This column shows the PLC input associated with an event. PLC inputs shown in **bold** font are ON (+24 VDC); PLC inputs with a minus sign and regular font are OFF (0 VDC). Refer to the 800rf Electrical Schematic in Section 5-4, Electrical System.

Table 5-1. Sequence Table – Random Mode

SEQUENCE – RANDOM MODE	PLC	VALVE	ACTION	OUTPUT	INPUT
IF AIR IS ON POWER IS ON POWER LIGHT IS ON GUARDS ARE CLOSED E-STOP BUTTONS ARE OFF THEN PRESS RESET BUTTON			TURN ON		15  3 3 2
RESET SEQUENCE FAST INFEED MOTOR (ROLLERS) SIDE DRIVE BELT MOTORS INFEED GATE SLOW INFEED MOTOR (ROLLERS) CENTERING RAILS SIDE DRIVE ASSEMBLIES PADDLE FORK UPPER HEAD BRAKES UPPER PORT LOWER PORT FOLDER ARM REAR FLAP FOLDER SIDE DRIVE ASSEMBLY LOCKS HEAD UP REED SWITCH IS MADE LOW AIR PRESSURE SWITCH	UNLATCH UNLATCH UNLATCH UNLATCH UNLATCH UNLATCH UNLATCH UNLATCH UNLATCH X X X UNLATCH UNLATCH UNLATCH UNLATCH LATCH	V8  V5 V6 V7 V11 V1 V4 V3 V9 V10 V2	TURN OFF TURN OFF MOVES UP TURN OFF MOVE OUT MOVE OUT MOVES DOWN MOVES DOWN UNLOCK VENTED VENTED MOVES UP MOVES UP UNLOCK NONE NONE	-12 -1 -3 -3 -4 -5 -6 -7 8 10 9 -2 -11 -0	11 15
IF STOP BUTTON IS PUSHED  <b>STEP 0</b> FAST INFEED MOTOR (ROLLERS) SIDE DRIVE BELT MOTORS INFEED GATE SLOW INFEED MOTOR (ROLLERS) LOW AIR PRESSURE SWITCH	UNLATCH UNLATCH UNLATCH UNLATCH UNLATCH	V8	PROGRAM GOES TO STEP 0  TURN OFF TURN OFF MOVES UP TURN OFF NONE	-12 -1 -3 -3	0    -15

## RANDOM MODE NOTES:

1. NARROW BOX REED SWITCH – IF REED SWITCH IS MADE ON ANY STEP, ALL OUTPUTS ARE TURNED OFF AND PROGRAM RETURNS TO STEP 0.
2. MOTOR OVERLOAD – IF ANY OVERLOAD CIRCUIT BREAKER TRIPS, ALL OUTPUTS ARE TURNED OFF AND PROGRAM RETURNS TO STEP 0.
3. CYCLE TIMER – IF CYCLE TIMER TIMES OUT, ALL OUTPUTS ARE TURNED OFF AND PROGRAM RETURNS TO STEP 0.
4. LATCH – PLC OUTPUT ON UNTIL UNLATCHED.
5. X – PLC OUTPUT ON FOR CURRENT STEP ONLY.

Table 5-1. Sequence Table – Random Mode (continued)

SEQUENCE – RANDOM MODE	PLC	VALVE	ACTION	OUTPUT	INPUT
IF START BUTTON IS PUSHED  <b>STEP 1</b> FAST INFEED MOTOR (ROLLERS) INFEED GATE SLOW INFEED MOTOR (ROLLERS) FORK SIDE BELT DRIVE MOTORS	LATCH LATCH (a) LATCH (a) LATCH LATCH	V11	PROGRAM GOES TO STEP 1  TURN ON MOVES DOWN  TURN ON MOVES UP TURN ON	  <b>12</b> <b>3</b>  <b>3</b> <b>7</b> <b>1</b>	<b>1</b>
IF PHOTOCELL PC1 IS BLOCKED  <b>STEP 2</b>			PROGRAM GOES TO STEP 2		<b>4</b>
IF PHOTOCELL PC1 IS CLEARED  <b>STEP 3</b> INFEED GATE SLOW INFEED MOTOR (ROLLERS) CENTERING RAILS START T1 (0.8 SEC) T1 TIMED OUT CENTERING RAILS	UNLATCH UNLATCH LATCH UNLATCH	V8 V5 V5	PROGRAM GOES TO STEP 3  MOVES UP  TURN OFF MOVE IN  MOVE OUT	  -3 -3 <b>4</b> -4	-4
IF PHOTOCELL PC3 IS BLOCKED  <b>STEP 4</b> SIDE DRIVE ASSEMBLIES BOX COUNTER UPPER PORT FAST INFEED MOTOR (ROLLERS)	LATCH LATCH X UNLATCH (b)	V6 V4	PROGRAM GOES TO STEP 4  MOVE IN COUNT UP 1 VENTED TURN OFF	  <b>5</b> <b>5</b> <b>10</b> -12	<b>6</b>
IF PHOTOCELL PC4 IS BLOCKED  <b>STEP 5</b> START T6 (0.0 SEC) T6 TIMED OUT SIDE DRIVE MOTORS UPPER PORT LOWER PORT START T2 (0.2 SEC)	UNLATCH X X (a)	V4 V3	PROGRAM GOES TO STEP 5  NONE  TURN OFF VENTED VENTED NONE	   -1 <b>10</b> <b>9</b>	<b>7</b>

(a) ONLY IF PHOTOCELL PC6 IS CLEAR.

(b) ONLY IF PHOTOCELL PC4 IS BLOCKED.

Table 5-1. Sequence Table – Random Mode (continued)

SEQUENCE – RANDOM MODE	PLC	VALVE	ACTION	OUTPUT	INPUT
IF T2 TIMED OUT  <b>STEP 6</b> UPPER PORT UPPER HEAD BRAKES LOWER PORT SIDE DRIVE ASSEMBLY LOCKS	  X X (a) X (a) LATCH	  V4 V1 V3 V2	PROGRAM GOES TO STEP 6  VENTED UNLOCK VENTED TURN ON	  <b>10</b> <b>8</b> <b>9</b> <b>0</b>	
IF PADDLE SWITCH IS MADE  <b>STEP 7</b> PADDLE FORK START T3 (1.0 SEC) & T7 (1.5 SEC) START T11 (0.1 SEC) T11 TIMED OUT T3 TIMED OUT UPPER HEAD BRAKES T7 TIMED OUT UPPER HEAD BRAKES START T8 (0.5 SEC)	  LATCH UNLATCH   LATCH UNLATCH	  V7 V11   V1 V1	PROGRAM GOES TO STEP 7  MOVES UP MOVES DOWN NONE NONE UNLOCK LOCK	  <b>6</b> -7   <b>8</b> -8	<b>10</b>
IF PHOTOCELL PC2 IS BLOCKED OR NOT BLOCKED  <b>STEP 8</b> IF PHOTOCELL PC2 IS NOT BLOCKED (SHORT BOX) FOLDER ARM FOLDER ARM REED SWITCH IS MADE REAR FLAP FOLDER T8 TIMED OUT SIDE DRIVE MOTORS IF PHOTOCELL PC2 IS BLOCKED (LONG BOX) SIDE DRIVE MOTORS PHOTOCELL PC2 IS CLEARED FOLDER ARM FOLDER ARM REED SWITCH IS MADE REAR FLAP FOLDER	  LATCH LATCH LATCH LATCH LATCH LATCH LATCH LATCH	  V9 V10     V9 V10	PROGRAM GOES TO STEP 8  MOVES DOWN MOVES DOWN TURN ON TURN ON MOVES DOWN MOVES DOWN	  <b>2</b> <b>11</b> <b>1</b> <b>1</b> <b>2</b> <b>11</b>	<b>16</b> <b>16</b>

(a) ONLY IF PHOTOCELL PC6 IS CLEAR.

Table 5-1. Sequence Table – Random Mode (continued)

SEQUENCE – RANDOM MODE	PLC	VALVE	ACTION	OUTPUT	INPUT
IF PHOTOCELL PC5 IS BLOCKED  <b>STEP 9</b> FOLDER ARM REAR FLAP FOLDER SIDE DRIVE ASSEMBLY LOCKS	UNLATCH UNLATCH UNLATCH	V9 V10 V2	PROGRAM GOES TO STEP 9  MOVES UP MOVES UP UNLOCK	  -2 -11 -0	<b>8</b>
IF PHOTOCELL PC5 IS CLEARED  <b>STEP 10</b> START T4 (0.2 SEC)			PROGRAM GOES TO STEP 10		-8
IF T4 TIMED OUT  <b>STEP 11</b> SIDE DRIVE ASSEMBLIES PADDLE UPPER HEAD BRAKES START T24 (0.1 SEC) T24 TIMED OUT UPPER PORT	UNLATCH UNLATCH LATCH  LATCH	V6 V7 V1  V4	PROGRAM GOES TO STEP 11  MOVE OUT MOVES DOWN UNLOCK  VENTED (HEAD RAISES)	  -5 -6 <b>8</b>  <b>10</b>	
IF HEAD UP REED SWITCH IS MADE  <b>STEP 12</b> UPPER HEAD BRAKES START T12 (0.1 SEC) T12 TIMED OUT UPPER PORT  RETURN TO STEP 1	UNLATCH  UNLATCH	V1  V4	PROGRAM GOES TO STEP 12  LOCK NONE  PRESSURE	  -8  -10	<b>11</b>



Table 5-2. Sequence Table – Fixed Mode

SEQUENCE – FIXED MODE	PLC	VALVE	ACTION	OUTPUT	INPUT
IF AIR IS ON POWER IS ON POWER LIGHT IS ON GUARDS ARE CLOSED E-STOP BUTTONS ARE OFF THEN PRESS RESET BUTTON			TURN ON		<b>15</b>  <b>3</b> <b>3</b> <b>2</b>
RESET SEQUENCE FAST INFEED MOTOR (ROLLERS) SIDE DRIVE BELT MOTORS INFEED GATE SLOW INFEED MOTOR (ROLLERS) CENTERING RAILS SIDE DRIVE ASSEMBLIES PADDLE FORK UPPER HEAD BRAKES UPPER PORT LOWER PORT FOLDER ARM REAR FLAP FOLDER SIDE DRIVE ASSEMBLY LOCKS HEAD UP REED SWITCH IS MADE LOW AIR PRESSURE SWITCH	UNLATCH UNLATCH UNLATCH UNLATCH UNLATCH UNLATCH UNLATCH UNLATCH UNLATCH X X X UNLATCH UNLATCH UNLATCH LATCH	V8   V5 V6 V7 V11 V1 V4 V3 V9 V10 V2	TURN OFF TURN OFF MOVES UP TURN OFF MOVE OUT MOVE OUT MOVES DOWN MOVES DOWN UNLOCK VENTED VENTED MOVES UP MOVES UP UNLOCK NONE NONE	-12 -1 -3 -3 -4 -5 -6 -7 <b>8</b> <b>10</b> <b>9</b> -2 -11 -0	<b>11</b> <b>15</b>
IF STOP BUTTON IS PUSHED  <b>STEP 0</b> FAST INFEED MOTOR (ROLLERS) SIDE DRIVE BELT MOTORS INFEED GATE SLOW INFEED MOTOR (ROLLERS) LOW AIR PRESSURE SWITCH	UNLATCH UNLATCH UNLATCH UNLATCH UNLATCH	V8	PROGRAM GOES TO STEP 0  TURN OFF TURN OFF MOVES UP  TURN OFF NONE	-12 -1 -3 -3	<b>0</b>      -15

## FIXED MODE NOTES:

1. NARROW BOX REED SWITCH – IF REED SWITCH IS MADE ON ANY STEP, ALL OUTPUTS ARE TURNED OFF AND PROGRAM RETURNS TO STEP 0.
2. MOTOR OVERLOAD – IF ANY OVERLOAD CIRCUIT BREAKER TRIPS, ALL OUTPUTS ARE TURNED OFF AND PROGRAM RETURNS TO STEP 0.
3. CYCLE TIMER – IF CYCLE TIMER TIMES OUT, ALL OUTPUTS ARE TURNED OFF AND PROGRAM RETURNS TO STEP 0.
4. LATCH – PLC OUTPUT ON UNTIL UNLATCHED.
5. X – PLC OUTPUT ON FOR CURRENT STEP ONLY.

Table 5-2. Sequence Table – Fixed Mode (continued)

SEQUENCE – FIXED MODE	PLC	VALVE	ACTION	OUTPUT	INPUT
IF START BUTTON IS PUSHED  <b>STEP 1</b> START T23 (0.4 SEC.) T23 TIMED OUT SIDE DRIVE ASSEMBLIES FAST INFEED MOTOR (ROLLERS) INFEED GATE SLOW INFEED MOTOR (ROLLERS) FORK SIDE BELT DRIVE MOTORS			PROGRAM GOES TO STEP 1  NONE MOVE OUT TURN ON MOVES DOWN TURN ON MOVES UP TURN ON		<b>1</b>
IF PHOTOCELL PC1 IS BLOCKED  <b>STEP 2</b>			PROGRAM GOES TO STEP 2		<b>4</b>
IF PHOTOCELL PC1 IS CLEARED  <b>STEP 3</b> INFEED GATE SLOW INFEED MOTOR (ROLLERS) CENTERING RAILS START T1 (0.8 SEC) T1 TIMED OUT CENTERING RAILS			PROGRAM GOES TO STEP 3  MOVES UP TURN OFF MOVE IN MOVE OUT		<b>-4</b>
IF PHOTOCELL PC3 IS BLOCKED  <b>STEP 4</b> SIDE DRIVE ASSEMBLIES BOX COUNTER PADDLE START T9 (0.6 SEC) FAST INFEED MOTOR (ROLLERS)			PROGRAM GOES TO STEP 4  MOVE IN COUNT UP 1 MOVES DOWN NONE TURN OFF		<b>6</b>
IF PHOTOCELL PC4 IS BLOCKED AND T9 TIMED OUT  <b>STEP 5</b> START T6 (0.0 SEC) T6 TIMED OUT SIDE DRIVE MOTORS START T2 (0.2 SEC)	(a)		PROGRAM GOES TO STEP 5  NONE TURN OFF NONE		<b>7</b>

(a) ONLY IF PHOTOCELL PC6 IS CLEAR.

(b) ONLY IF PHOTOCELL PC4 IS BLOCKED.

Table 5-2. Sequence Table – Fixed Mode (continued)

SEQUENCE – FIXED MODE	PLC	VALVE	ACTION	OUTPUT	INPUT
IF T2 TIMED OUT  <b>STEP 6</b> SIDE DRIVE ASSEMBLY LOCKS START T5 (15.0 SEC), CYCLE TIMER	LATCH	V2	PROGRAM GOES TO STEP 6  TURN ON  NONE	  <b>0</b>	
IF PADDLE SWITCH IS MADE  <b>STEP 7</b> FORK START T8 (0.5 SEC)	UNLATCH	V11	PROGRAM GOES TO STEP 7  MOVES DOWN NONE	  -7	<b>10</b>
IF PHOTOCELL PC2 IS BLOCKED OR NOT BLOCKED <b>STEP 8</b> IF PHOTOCELL PC2 IS NOT BLOCKED (SHORT BOX) FOLDER ARM FOLDER ARM REED SWITCH IS MADE REAR FLAP FOLDER T8 TIMED OUT SIDE DRIVE MOTORS IF PHOTOCELL PC2 IS BLOCKED AND T8 TIMED OUT (LONG BOX) SIDE DRIVE MOTORS PHOTOCELL PC2 IS CLEARED FOLDER ARM FOLDER ARM REED SWITCH IS MADE REAR FLAP FOLDER	LATCH  LATCH  LATCH  LATCH  LATCH	V9  V10  V9  V10	PROGRAM GOES TO STEP 8  MOVES DOWN  MOVES DOWN  TURN ON  TURN ON  MOVES DOWN  MOVES DOWN	  <b>2</b>  <b>11</b>  <b>1</b>  <b>1</b>  <b>2</b>  <b>11</b>	             <b>16</b>             <b>16</b>
IF PHOTOCELL PC5 IS BLOCKED  <b>STEP 9</b> FOLDER ARM REAR FLAP FOLDER SIDE DRIVE ASSEMBLY LOCKS	UNLATCH UNLATCH UNLATCH	V9 V10 V2	PROGRAM GOES TO STEP 9  MOVES UP MOVES UP UNLOCK	  -2 -11 -0	<b>8</b>
IF PHOTOCELL PC5 IS CLEARED  <b>STEP 10</b> PADDLE	LATCH	V7	PROGRAM GOES TO STEP 10  MOVES UP	  <b>6</b>	-8
RETURN TO STEP 1					

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Table 5-3. Sequence Table – Bypass Mode

SEQUENCE – BYPASS MODE	PLC	VALVE	ACTION	OUTPUT	INPUT
IF AIR IS ON POWER IS ON POWER LIGHT IS ON GUARDS ARE CLOSED E-STOP BUTTONS ARE OFF THEN PRESS RESET BUTTON			TURN ON		<b>15</b>  <b>3</b> <b>3</b> <b>2</b>
RESET SEQUENCE FAST INFEED MOTOR (ROLLERS) SIDE DRIVE BELT MOTORS INFEED GATE SLOW INFEED MOTOR (ROLLERS) CENTERING RAILS SIDE DRIVE ASSEMBLIES PADDLE FORK UPPER HEAD BRAKES UPPER PORT LOWER PORT FOLDER ARM REAR FLAP FOLDER SIDE DRIVE ASSEMBLY LOCKS HEAD UP REED SWITCH IS MADE LOW AIR PRESSURE SWITCH	UNLATCH UNLATCH UNLATCH UNLATCH UNLATCH UNLATCH UNLATCH UNLATCH X X X UNLATCH UNLATCH UNLATCH UNLATCH LATCH	V8   V5 V6 V7 V11 V1 V4 V3 V9 V10 V2	TURN OFF TURN OFF MOVES UP TURN OFF MOVE OUT MOVE OUT MOVES DOWN MOVES DOWN UNLOCK VENTED VENTED MOVES UP MOVES UP UNLOCK NONE NONE	-12 -1 -3 -3 -4 -5 -6 -7 <b>8</b> <b>10</b> <b>9</b> -2 -11 -0	<b>11</b> <b>15</b>
IF STOP BUTTON IS PUSHED  <b>STEP 0</b> FAST INFEED MOTOR (ROLLERS) SIDE DRIVE BELT MOTORS INFEED GATE SLOW INFEED MOTOR (ROLLERS) PADDLE FORK LOW AIR PRESSURE SWITCH	UNLATCH UNLATCH UNLATCH UNLATCH LATCH UNLATCH UNLATCH	V8   V7 V11	PROGRAM GOES TO STEP 0  TURN OFF TURN OFF MOVES UP TURN OFF MOVES UP MOVES DOWN NONE	  -12 -1 -3 -3 <b>6</b> -7	<b>0</b>      -15

## BYPASS MODE NOTES:

1. NARROW BOX REED SWITCH – IF REED SWITCH IS MADE ON ANY STEP, ALL OUTPUTS ARE TURNED OFF AND PROGRAM RETURNS TO STEP 0.
2. MOTOR OVERLOAD – IF ANY OVERLOAD CIRCUIT BREAKER TRIPS, ALL OUTPUTS ARE TURNED OFF AND PROGRAM RETURNS TO STEP 0.
3. CYCLE TIMER – IF CYCLE TIMER TIMES OUT, ALL OUTPUTS ARE TURNED OFF AND PROGRAM RETURNS TO STEP 0.
4. LATCH – PLC OUTPUT ON UNTIL UNLATCHED.
5. X – PLC OUTPUT ON FOR CURRENT STEP ONLY.

Table 5-3. Sequence Table – Bypass Mode (continued)

SEQUENCE – BYPASS MODE	PLC	VALVE	ACTION	OUTPUT	INPUT
IF START BUTTON IS PUSHED  <b>STEP 1</b> FAST INFEED MOTOR (ROLLERS) INFEED GATE SLOW INFEED MOTOR (ROLLERS) SIDE BELT DRIVE MOTORS	LATCH LATCH (a)  LATCH (a) LATCH		PROGRAM GOES TO STEP 1  TURN ON MOVES DOWN  TURN ON TURN ON	  <b>12</b> <b>3</b>  <b>3</b> <b>1</b>	<b>1</b>
IF PHOTOCELL PC1 IS BLOCKED  <b>STEP 2</b>			PROGRAM GOES TO STEP 2		<b>4</b>
IF PHOTOCELL PC1 IS CLEARED  <b>STEP 3</b> INFEED GATE SLOW INFEED MOTOR (ROLLERS) CENTERING RAILS START T1 (0.8 SEC) T1 TIMED OUT CENTERING RAILS	UNLATCH  UNLATCH LATCH  UNLATCH	V8   V5  V5	PROGRAM GOES TO STEP 3  MOVES UP  TURN OFF MOVE IN  MOVE OUT	  -3  -3 <b>4</b>  -4	-4
IF PHOTOCELL PC3 IS BLOCKED  <b>STEP 4</b> SIDE DRIVE ASSEMBLIES BOX COUNTER UPPER PORT START T9 (0.6 SEC) FAST INFEED MOTOR (ROLLERS)  IF PHOTOCELL PC4 IS BLOCKED AND T9 TIMED OUT	LATCH LATCH X  UNLATCH (b)	V6  V4	PROGRAM GOES TO STEP 4  MOVE IN COUNT UP 1 VENTED NONE TURN OFF  PROGRAM GOES TO STEP 5	  <b>5</b> <b>5</b> <b>10</b>  -12	<b>6</b>
<b>STEP 5</b> START T6 (0.0 SEC) T6 TIMED OUT START T2 (0.2 SEC)			NONE  NONE		<b>7</b>

(a) ONLY IF PHOTOCELL PC6 IS CLEAR.

(b) ONLY IF PHOTOCELL PC4 IS BLOCKED.

Table 5-3. Sequence Table – Bypass Mode (continued)

SEQUENCE – BYPASS MODE	PLC	VALVE	ACTION	OUTPUT	INPUT
IF T2 TIMED OUT AND PHOTOCELL PC6 IS CLEARED <b>STEP 6</b> SIDE DRIVE ASSEMBLY LOCKS START T5 (15.0 SEC), CYCLE TIMER	LATCH	V2	PROGRAM GOES TO STEP 6  TURN ON  NONE	<b>0</b>	
<b>STEP 7</b> START T3 (1.0 SEC) & T7 (1.5 SEC) START T8 (0.5 SEC)			PROGRAM GOES TO STEP 7  NONE  NONE		
<b>STEP 8</b>			PROGRAM GOES TO STEP 8		
IF PHOTOCELL PC5 IS BLOCKED <b>STEP 9</b> SIDE DRIVE ASSEMBLY LOCKS	UNLATCH	V2	PROGRAM GOES TO STEP 9  UNLOCK	-0	<b>8</b>
IF PHOTOCELL PC5 IS CLEARED <b>STEP 10</b> START T4 (0.2 SEC)			PROGRAM GOES TO STEP 10		-8
IF T4 TIMED OUT <b>STEP 11</b> SIDE BELT DRIVE MOTORS SIDE DRIVE ASSEMBLIES	UNLATCH UNLATCH	V6	PROGRAM GOES TO STEP 11  TURN OFF MOVE OUT	-1 -5	
<b>STEP 12</b>			PROGRAM GOES TO STEP 12		
RETURN TO STEP 1					

## 5-4. Electrical System

When reading about the electrical system, refer to the 800rf Electrical Schematic in Subsection 5-4-3.

### 5-4-1. Power Distribution

The Main Disconnect switch DISC 1 controls 3-phase, 208 – 240 VAC to the 800rf case sealer. Turning DISC 1 ON applies 3-phase, 208 – 240 VAC to the 1-3-5 contacts of the Overload Circuit Breakers OL3 and OL4 which feed the 1-3-5 contacts of the Motor Control Relays K2 and K4. These breakers provide protection for the infeed drive motors. The Infeed Drive Motors #1 and #2 do not receive power until later, when the controller energizes Motor Control Relays K2 (PLC OUT 3) and K4 (PLC OUT 12).

Turning DISC 1 ON also applies 3-phase, 208 – 240 VAC to the 1-3-5 contacts of the Motor Control Relay K1 which feeds the 1-3-5 contacts of the Overload Circuit Breakers OL1 and OL2. These breakers provide protection for the side belt drive motors, which do not receive power until later when the controller energizes Motor Control Relay K1 (PLC OUT 1).

Single-phase, 208 – 240 VAC is applied to the Omron power supply. The power supply output is +24 VDC which is used to energize the POWER lamp and supply power to terminal VDC 4 on the PLC, the Guard Door Interlocks GRD1, GRD2, GRD3, and GRD4, the rear and front E-Stop switches, and auxiliary contacts of the Overload Circuit Breakers OL1, OL2, OL3, and OL4.

The POWER lamp, located on the Electrical Control Panel, lights to show that +24 VDC is present.

Pressing the RESET switch energizes the Master Control Relay K3 which provides +24 VDC power for operation of all photocells and reed switches, the Main Air Solenoid SV0, and terminals VDC 1, VDC 2, and VDC 3 on the PLC

In addition, +24 VDC is used as direct signal input to the controller via the STOP switch (PLC IN 0), START switch (PLC IN 1), RESET switch (PLC IN 2), E-Stop/Guard Door switches (PLC IN 3), FIXED mode switch (PLC IN 13), BYPASS mode switch (PLC IN 14), Low Air Pressure switch SU2 (PLC IN 15), and the Overload Circuit Breakers OL1, OL2, OL3, and OL4 (PLC IN 17).

The ALARM BEACON (top of machine) and FAULT lamp (Electrical Control Panel) light when the controller detects a machine error and energizes Alarm Relay K5 (PLC OUT 13).

### 5-4-2. Special Circuits/Components

#### Programmable Logic Controller

The Allen-Bradley SLC 500™ contained in the Model 800rf Type 39800 Case Sealer is a Programmable Logic Controller (PLC). A PLC processes binary (one - zero, on - off, high - low) input signals to produce output (control) signals which directly influence electrical or mechanical processes, operations, or sequences.

In the 800rf, the PLC controls the drive motors and all pneumatic components to ensure that all of the steps in the case sealing sequence occur in the correct order, with event timing coordinated with case length.

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#### ✓ Note

Refer to the PLC Addendum at the back of this manual for more PLC-related information.

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#### Limit Switches

The limit switches used in the 800rf are air cylinder-mounted, reed switches that are powered by +24 VDC. They magnetically sense the presence of the cylinder's internal piston base. When non-activated, the limit switch output is low (0 V). When activated, by the presence of the cylinder piston, the limit switch output is high (+24 VDC)



**Photocells**

Six photocells positioned along the left side (front) of the case sealer detect the presence of boxes as they pass through the case sealer. Each photocell emits infrared light that is normally reflected back to the photocell from a reflector on the right side (rear) of the case sealer. In their light-sensing condition, the photocells provide a low (0 V) input to their respective PLC inputs. When a moving box blocks a photocell light path, the photocell output to the PLC becomes +24 VDC, signaling the box's presence.

**Motor Control Circuits**

There are two motor control circuits in the 800rf: one for the infeed drive motors, and one for the side belt drive motors.

The infeed drive motor control circuit consists of the Motor Control Relays K2 and K4 and the Overload Circuit Breakers OL3 and OL4 and their related auxiliary contacts. Energizing K2 and K4 closes their contacts, providing AC (through the OL3 and OL4 contacts) to the infeed drive motors. The OL3 and OL4 circuit breakers protect the infeed drive motors from burnout due to overload conditions. If an overload condition occurs in either motor, all of the motor-related OL3 or OL4 contacts actuate. The contacts in series with the motor open to remove drive AC.

The side belt drive motor control circuit consists of the Motor Control Relay K1 and the Overload Circuit Breakers OL1 and OL2 and their related auxiliary contacts. Energizing K1 closes its contacts, providing AC (through the OL1 and OL2 contacts) to the side belt drive motors. The OL1 and OL2 circuit breakers protect the side belt drive motors from burnout due to overload conditions. If an overload condition occurs in either motor, all of the motor-related OL1 or OL2 contacts actuate. The contacts in series with the motor open to remove drive AC.

Overload Circuit Breakers OL1, OL2, OL3, and OL4 can be adjusted to actuate at different current settings within their 1-amp to 1.6-amp operating range. Normally, they are set at 1.4 amp.

**E-Stop/Guard Door Switches**

This circuit consists of six switches connected in series; the four Guard Door Interlocks GRD1, GRD2, GRD3, and GRD4, and two E-Stop switches. These switches are all normally closed, presenting a +24 VDC "enable" signal to PLC input IN 3. If any of these switches open, +24 VDC is removed from the Master Control Relay K3 and PLC IN 3, causing the PLC to stop all case sealer operations.

A Guard Door Interlock switch opens whenever its corresponding safety door is opened.

One E-Stop switch is mounted on the rear main frame of the case sealer; the other E-Stop switch is mounted on the Electrical Control Panel. The E-Stop switches are red latching push-button switches easily operated from either side of the case sealer.

When either E-Stop switch is pressed, it latches in the down (open) position and the case sealer cannot be restarted until the switch is unlatched (closed) by turning the red latching push-button switch clockwise and releasing it.

**STOP Switch**

The STOP switch S1, located on the Electrical Control Panel, is normally closed, presenting a +24 VDC "enable" signal to PLC input IN 0. Pressing the STOP switch removes +24 VDC from PLC input IN 0, causing the PLC to stop case sealer operations and return the case sealer to its "home" condition.

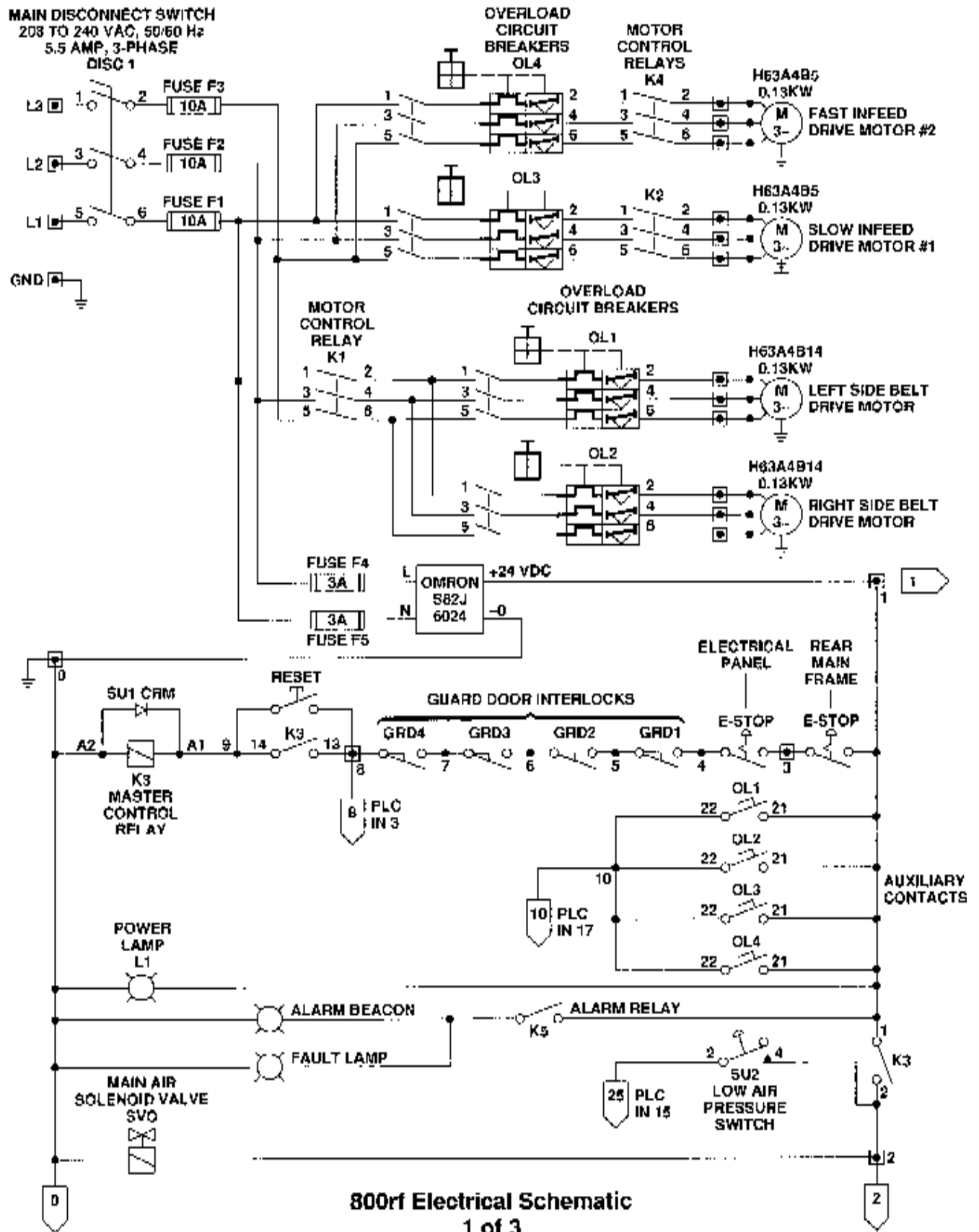
**1-1-3. Electrical Schematic**

The 800rf Electrical Schematic is shown on three pages, which are labeled 1 of 3, 2 of 3, and 3 of 3. The first page contains the power distribution and motor control circuits, the safety interlocks, and the fault indicators. The second page contains inputs to the PLC, such as photocells, reed switches, and other switches. The third page contains outputs from the PLC which control the solenoid valves, control relays, E-STOP and RUN lamps, and the box counter.

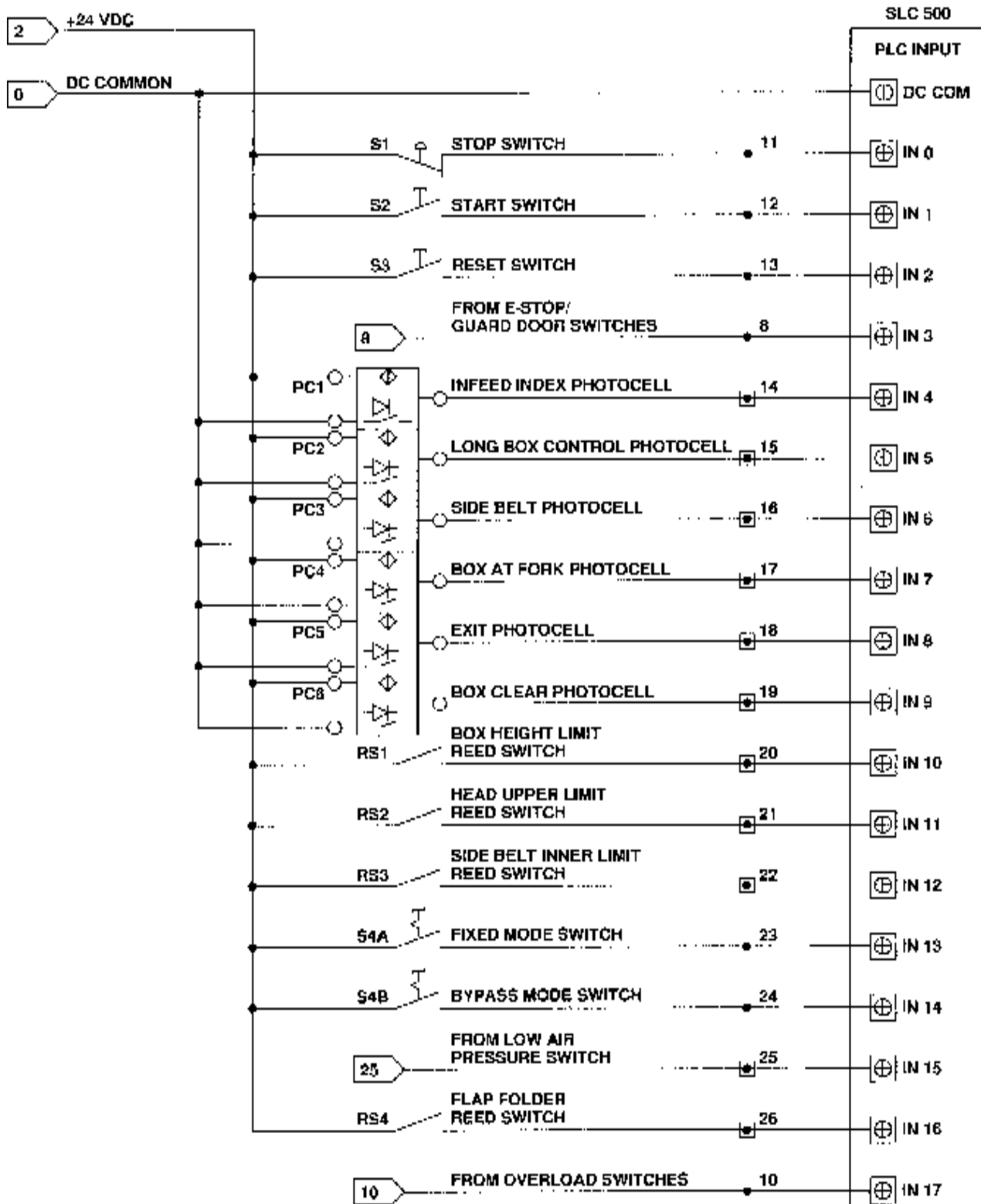
Table 5-4 lists the electrical components shown on the schematic and provides other information such as the manufacturer and part number.

**Table 5-4. Electrical Components**

<b>Component</b>	<b>Manufacturer</b>
Main Disconnect Switch	DISC 1, Sprecher+Schuh LA2-16
Overload Circuit Breaker	OL1 – OL4, Allen-Bradley CAT-140-MN-0160, Sprecher+Schuh KT3-25-PA-11 (Auxiliary Contacts)
Drive Motors	Coel H63A4
Control Relays	K1 – K4, Sprecher+Schuh CA4-5C-10
Fuse 10A	F1 – F3, Little Fuse CCMR-10
Fuse 3A	F4, F5, Little Fuse KLDR-3
Power Supply	Omron S82J-6024
Alarm Relay	K5, Nais HC4-H-DC24V
Guard Door Interlocks	GRD1 – GRD4, Bernstein SK-U1ZM
Latching E-Stop Switches	Allen-Bradley 800EM-LMJP24
Indicator Lamps	Allen-Bradley 800EQ-PXXX
Main Air Solenoid Valve	SV0, SMC SY7120-5D2-02T
Solenoid Valves	SV1 – SV11, SMC 5Y5140-5FU
Programmable Logic Controller	PLC, Allen-Bradley SLC 500 1747-L40F
Photocells	PC1 – PC6, Omron E3F2-R2B4-P1
Control, Residual Magnetism	CRM, SU1, Allen-Bradley 199FSM21
Low Air Pressure Switch	PS1/SU2, SMC, IS 1000 F01X201
Carton Counter	Omron H7GP-CD
Reed Switches	RS1 – RS4, SMC DC73C-75 or SMC D-A57
Function Switches	S1 – S3, S4A and S4B, Allen-Bradley 800-3X



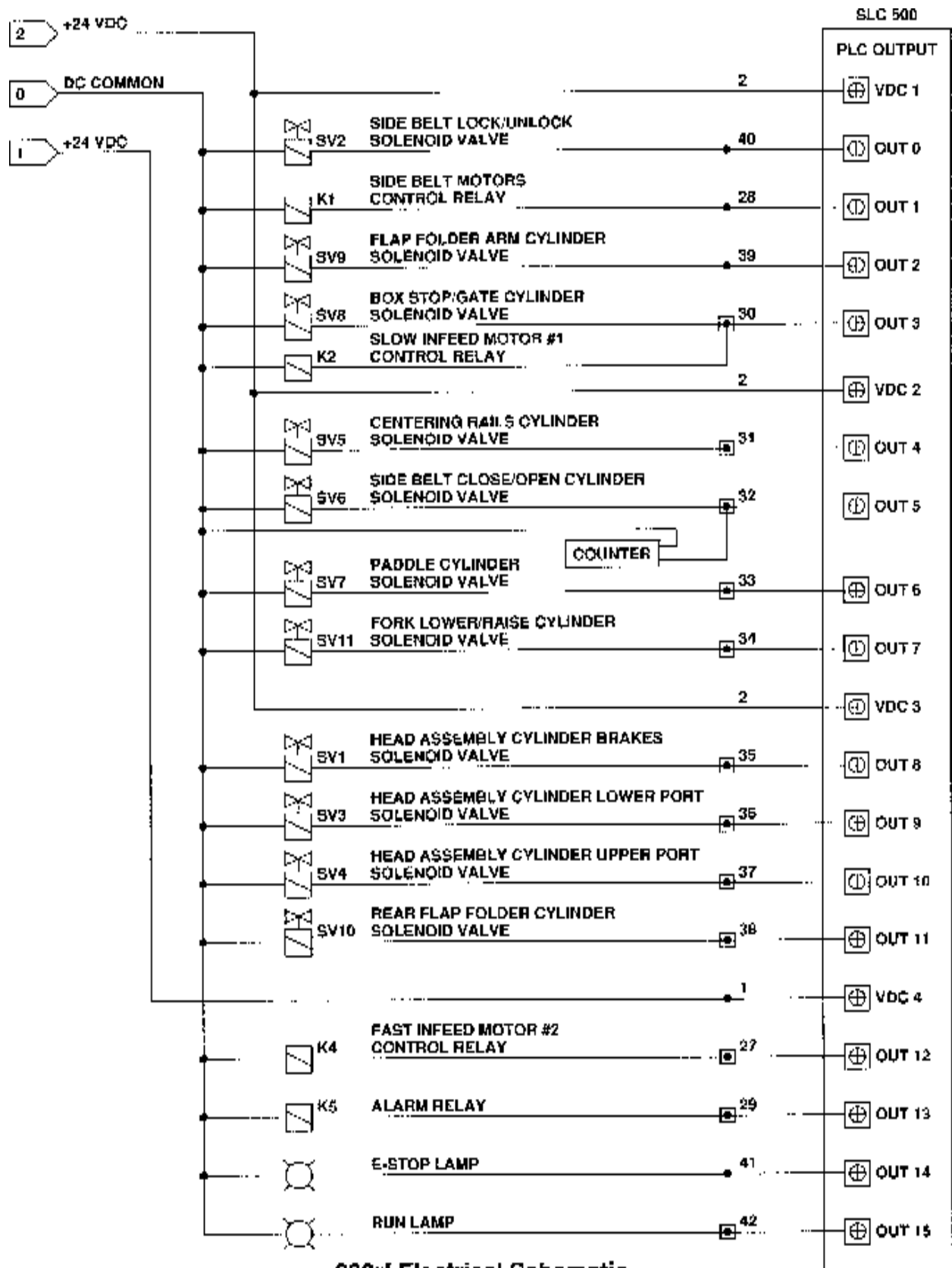
B00r 256A



800rf Electrical Schematic  
2 of 3

PLC INPUTS IN 18  
THRU IN 23 ARE  
NOT USED.

61611T 007A



800rf Electrical Schematic  
3 of 3

700A-250A

## 5.5 Pneumatic System

When reading about the pneumatic system, refer to the 800rf Pneumatic Diagram on the next page.

The main feature of the pneumatic system used in the 800rf case sealer is that all of the directional control valves are solenoid-operated. Each solenoid receives operating voltages of either +24 VDC to energize it or 0 VDC to de-energize it. These voltages come from the Programmable Logic Controller (PLC) located in the Electrical Control Panel. Whenever a controller output is active (at +24 VDC), an output-associated light emitting diode (LED) lights to show that the solenoid is energized and the valve is active.

Valves V0 through V11 are 5-way, 2-position valves.

Facility compressed air of 95 – 100 PSIG minimum is applied to the air fitting on the front of the case sealer near the exit end. An Air On/Off Valve controls the air supply to the case sealer. The air is filtered and then regulated to 95 – 100 PSIG. Air from the Filter/Regulator is supplied to port P of the Main Air valve V0. From port A of V0, air is supplied to the main manifold, the Air Indicator, the Counter-Balance Pressure Regulator, Box Centering Pressure Regulator, Side Belt Pressure Regulator, and the Paddle Pressure Regulator. The air indicator shows red to indicate that the air supply is on.

At the Head Brakes valve V1, air is supplied to port P and through the valve to blocked port B. The spring loaded head brakes remain on.

At the Side Drive Locks valve V2, air is supplied to port P and through the valve to blocked port B. The side drive assembly locks remain unlocked.

Air is supplied through the Head Lower Ports valve V3 to the cap ends of the Head Assembly Cylinders. At the same time, air is supplied from the Counter-Balance Pressure Regulator through the Head Upper Ports valve V4 to the rod ends of the cylinders. Since both ends of the cylinders have pressure and the brakes are on, the upper head assembly stays locked in the up position.

At the Centering Rails valve V5, air is supplied from the Box Centering Pressure Regulator through the valve to the rod end of the Centering Rails Cylinder causing it to retract. The centering rails move out.

At the Side Drive Belts valve V6, air is supplied from the Side Belt Pressure Regulator through the valve to the rod end of the Side Drive Belts Cylinder causing it to retract. The side drive belts move out.

At the Paddle valve V7, air is supplied from the Paddle Pressure Regulator through the valve to the rod end of the Paddle Cylinder causing it to retract. The paddle moves down.

At the Infeed Gate valve V8, air is supplied from the manifold through the valve to the cap end of the Infeed Gate Cylinder causing it to extend. The infeed gate moves up.

At the Flap Folder Arm valve V9, air is supplied from the manifold through the valve to the cap end of the Flap Folder Arm Cylinder causing it to extend. The flap folder arm moves up.

At the Rear Flap Folder valve V10, air is supplied from the manifold through the valve to the cap end of the Rear Flap Folder Cylinder causing it to extend. The rear flap folder itself is retracted back into the flap folder arm.

At the Fork valve V11, air is supplied from the manifold through the valve to the rod end of the Fork Cylinder causing it to retract. The fork moves down.

### ✓ Note

Valves V1 through V11 can be manually actuated to initiate the operation of other pneumatic components within the 800rf case sealer. Refer to Pneumatic Component Testing in Section 6, Troubleshooting.

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**6-1. General**

Read the Theory of Operation in Section 5, so that the operational characteristics of the machine are understood.

Additionally, refer to Pneumatic Component Testing and Electrical Fault Conditions at the end of this section along with the PLC Addendum and its PLC Troubleshooting section.

**6-2. Troubleshooting Guide**

The following Troubleshooting Guide lists some possible machine problems, causes, and corrections.

<b>Problem</b>	<b>Cause</b>	<b>Correction</b>
The tape is not centered on the case seam.	Cases not centered on conveyor.  Case flaps are not of equal length.  Tape drum is not centered.	Check/adjust the infeed centering function and the side belt drive centering linkage.  Check case specifications.  Reposition the tape drum.
Drive belts do not turn.	Electrical disconnect.  Side belt drive motor overload circuit breakers (OL1 or OL2) not at correct amperage setting.  Motor not turning.  Drive belt tension too low.  Worn rubber drive ring(s).	Check power and electrical plug.  Set to correct amperage. (1.4 amps)  Evaluate problem and correct.  Adjust Side Belt Tension (refer to Section 3).  Replace ring(s).
Drive belts do not convey cases.	Side belt pressure too low.  Worn drive belts.  Top flap compression rollers set too far inward.  Tape tension is too high.  Taping head applying spring tension set too high.	Check/adjust Side Belt Pressure Regulator at the Pneumatic Control Panel to 40 PSIG.  Replace drive belts.  Reposition compression rollers.  Check threading path, tension adjustments, and operation of taping head rollers.  Reduce spring tension.

<b>Problem</b>	<b>Cause</b>	<b>Correction</b>
Box rear flap pulled back out of box.	Rear flap folder out of adjustment. Section 3). Flaps not positioned properly before entering case sealer.	Adjust Rear Flap Folder (refer to Section 3). Position flaps properly.
Front of box crushed by upper head assembly.	Paddle is not returning after previous box.	Adjust Paddle Pressure Regulator (refer to Section 3).
Crease marks on upper surface of box.	Upper head assembly is coming down too far.	Adjust Case Top Sensitivity (refer to Section 3). Adjust Counter-Balance Pressure Regulator (refer to Section 3). Adjust Upper Head Assembly Down/Up Rates (refer to Section 3).
Box drives to fork, belts stop, head doesn't come down, and no further machine operation.	PC 6 blocked.	Remove blockage.
Tape leg on front of case is too long.	Tape is threaded incorrectly.  Tape tension is too low.  Knurled roller drags between the knurled roller and its  Tape tracks to one side or drags on support tabs of the applying frame.  One-way roller is not positioned properly.  Head is not set up properly.	Tape must go around tension wrap roller before going around one-way tension roller.  Adjust One-Way Tension Roller (refer to Section 3).  Check for adhesive build-up shaft. If problem continues, replace with new flanged roller 78-8070-1367-3.  Adjust Tape Web Alignment (refer to Section 3).  Position roller in its mounting slot so that tape extends beyond the centerline of applying roller.  Check leg length adjustments.
Blade does not cut tape or tape end is jagged or shredded.	Blade is dull and/or has broken teeth.	Replace blade.
(continued)	Tape tension is not sufficient.	Adjust one-way roller to increase tape tension.

Problem	Cause	Correction
Blade does not cut tape or tape end is jagged or shredded. (continued)	Adhesive has built up on blade. Cutoff force is not sufficient. Cutoff blade is dry. Blade is not positioned properly.	Clean blade. Install an additional cutoff spring. Lubricate blade oiler pad on blade guard. See blade replacement procedure in the related taping head technical manual.
Top tape not cutting.	Upper head assembly is not coming down in contact with top of box. Blade is installed “backwards.” Cutter spring(s) missing or stretched. Bearing side inner surface of one-way tension roller is not fully contacting the taping head frame.	Adjust Case Top Sensitivity (refer to Section 3). Adjust Counter-Balance Pressure Regulator (refer to Section 3). Mount blade so its beveled edge is in contact with felt oiler pad mounted inside the blade guard. Replace cutter spring(s). Make sure that one-way bearing is below surface of tension roller. If
Tape is tabbing on trailing leg on back of case.	Excess tension on tape drum assembly and/or one-way tension roller. Rollers in tape path do not rotate freely. Blade is not cutting tape properly. Tape is threaded incorrectly.	not, press bearing in farther or replace roller. Adjust tape drum assembly and/or one-way tension roller. Clean deposits from surface, ends, and shafts of rollers. Use 3M Natural Cleaner, # 62-4668-2730-0. Then use 3M 5-Way Spray Lubricant, # 62-4696-2730-1, on shafts. See tape cut problems in preceding panels. Rethread tape.

Problem	Cause	Correction
Tape end does not stay in application position in front of applying roller.	<p>Tape is threaded incorrectly.</p> <p>Flanged knurled roller overruns on return of applying mechanism to its rest position.</p>	<p>Rethread tape.</p> <p>Adjust one-way tension roller in its mounting slot to lengthen the tape leg.</p>
	<p>Applying roller overruns on return of applying mechanism to its rest position.</p> <p>One-way tension roller is not positioned correctly.</p> <p>One-way tension roller is defective.</p>	<p>There should be a slight drag when rotating the flanged knurled roller due to an internal spring. If not, remove and check. Replace flanged knurled roller if necessary.</p> <p>There should be a slight drag when rotating the applying roller. If not, check friction spring(s) and replace if necessary.</p> <p>Position tension roller in its mounting slot so that tape end extends beyond the centerline of applying roller.</p> <p>Replace one-way tension roller.</p>
Tape adheres to itself or machine frame.	Tape roll is rotating too freely (overtravel).	Increase tension on friction brake tape drum until problem is eliminated. Excessive tension may cause tape tabbing.
Tape leg on rear of case is too long.	<p>Taping head is not set up properly.</p> <p>Cutoff bracket “hangs up.”</p>	<p>Check tape leg length adjustment.</p> <p>Check for and eliminate any interference.</p>

<b>Problem</b>	<b>Cause</b>	<b>Correction</b>
Tape edge folds over, providing an unsatisfactory seal.	Tape drum is not aligned.  Tape roll is “telescoped.” Tape drum bracket is bent. (More likely the lower head when the tape drum bracket is attached to that tape head.)	Adjust Tape Web Alignment (refer to Section 3).  Replace tape roll. Straighten/replace tape drum bracket.
Leading edge of case is crushed or leading edge of closed flaps is folded over.	Applying mechanism spring tension is too high.	Reduce pressure by removing spring end loop from the spring holder and placing it in other holes provided farther from the hook end of the spring holder.
Tape releases from case while in storage.	Tape or case being used is incorrect.	Contact your 3M-Matic servicing distributor, 3M sales representative, or 3M-Matic Helpline (Customer Support Center) 1-800-328-1390.  Generally, if case exits the machine with tape correctly applied, the machine is not at fault.

6-3. Pneumatic Component Testing

Using the solenoid actuated valves, located in the Pneumatic Control Panel, you can manually actuate the valves that initiate the operation of other pneumatic components within the Model 800rf Case Sealer. The valves have a center block actuator button that can be used for testing.

✓ Note

Operate the valves one-at-time; deactivate one valve before actuating another valve.

Figure 6-1 shows the locations of the solenoid actuated valves within the Pneumatic Control Panel.

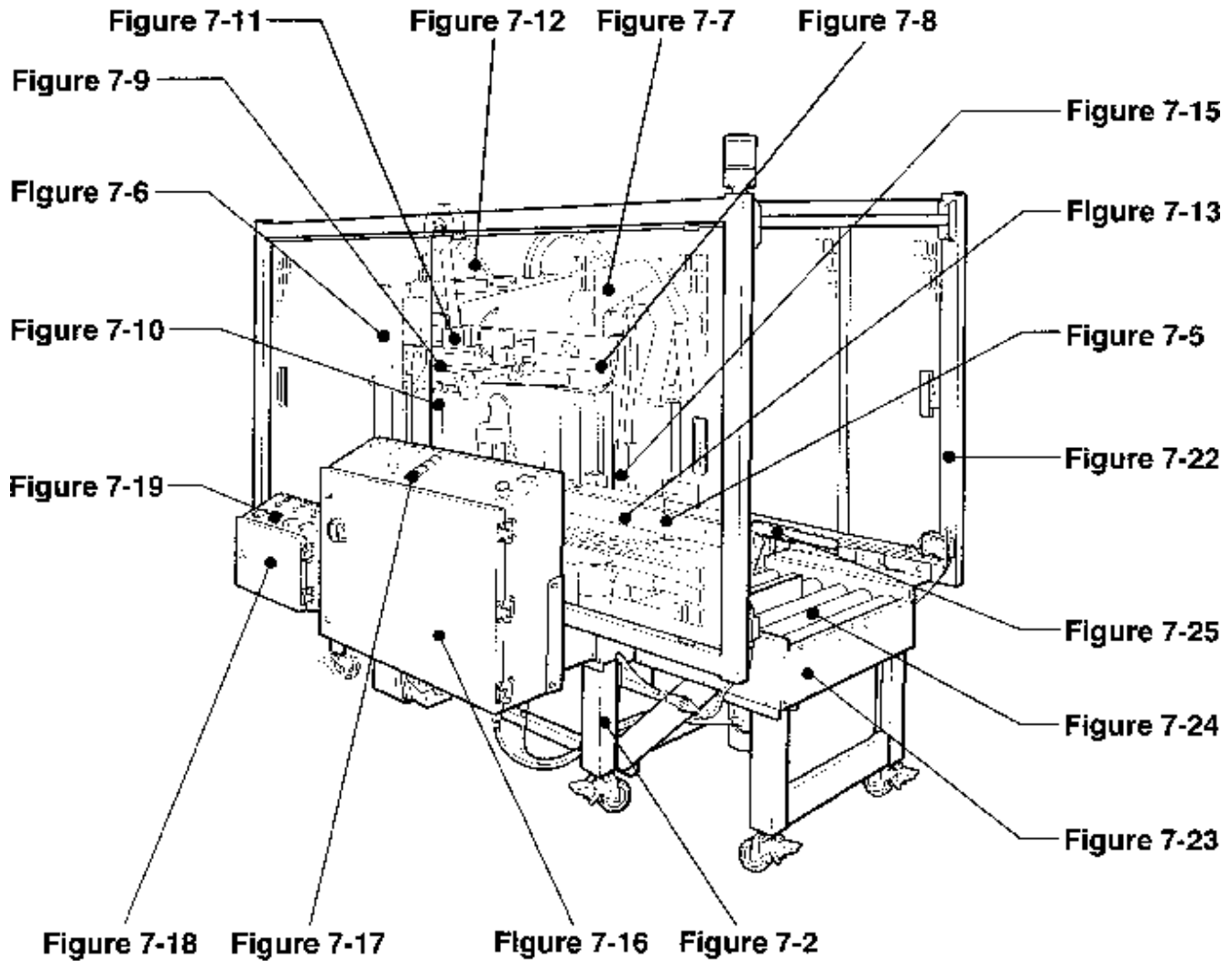


Figure 6-1. Pneumatic Valve Locations

E031-238H

The following table lists the pneumatic valves and describes the function of each valve.

### **⚠ Warning**

**To avoid injury to yourself or others, never actuate a pneumatic valve unless everyone is clear of the machine. Also all tools and cartons must be away from the machine.**

Valve Number and Name	Valve Function
V1 Head Assembly Cylinder Brakes Valve (Turns brakes off)	Initiating the actuator turns the column cylinder brakes off. The upper head assembly does not move down due to air pressure on the lower ports of the column cylinders.
V2 Side Drive Assembly Locks Valve (Turns brakes on)	Initiating the actuator turns the brakes on. There is no movement of the side drive belt assemblies.
V3 Head Assembly Cylinders/Lower Ports Valve (Exhausts lower ports)	Initiating the actuator exhausts the lower ports of the column cylinders. The upper head assembly moves down ONLY if valve V1 is also actuated.
V4 Head Assembly Cylinders/Upper Ports Valve (Exhausts upper ports)	Initiating the actuator exhausts the upper ports of the column cylinders. The upper head assembly does not move.
V5 Centering Rails Cylinder Valve (Moves rails inward)	Initiating the actuator moves the centering rails in; releasing the actuator moves the centering rails out.
V6 Side Drive Belts Cylinder Valve (Moves assemblies inward)	Initiating the actuator moves the side drive belt assemblies in; releasing the actuator moves the side drive belt assemblies out.
V7 Paddle Cylinder Valve (Moves paddle up)	Initiating the actuator moves the paddle up; releasing the actuator moves the paddle down.
V8 Infeed Box Stop-Gate Cylinder Valve (Moves box stop-gate up)	Initiating the actuator moves the box stop-gate up; releasing the actuator moves the box stop-gate down.
V9 Flap Folder Arm Cylinder Valve (Moves arm down)	Initiating the actuator moves the flap folder arm down; releasing the actuator moves the flap folder arm up.
V10 Rear Flap Folder Cylinder Valve (Moves flap folder down)	Initiating the actuator moves the flap folder down; releasing the actuator moves the flap folder up.
V11 Fork Cylinder Valve (Moves fork up)	Initiating the actuator moves the fork up; releasing the actuator moves the fork down.

**6-4. Electrical Circuit Fault Conditions**

The Model 800rf Case Sealer displays electrical circuit fault conditions on the Electrical Control Panel with red light indicators along with a red beacon light on a light pole.

The following table lists the red fault indicators that light on the Electrical Control Panel. The table also describes the fault conditions that may cause the indicators to light, and suggests how to correct the fault conditions.

**✓ Note**

The red beacon light turns on for any fault condition and remains on until the fault condition is corrected.

<b>Red Fault Indicator on Panel</b>	<b>Fault Condition</b>	<b>Correction</b>
E-STOP/SLIDING DOOR and FAULT	One or both E-Stop switches may be pressed. One or more sliding doors may be open.	Check the E-Stop switches; make sure they are unlatched and up. Check the sliding doors; make sure they are closed.
FAULT	Main Air Pressure Regulator set too low, or required air pressure is not being maintained during machine operation.	Refer to Specifications in Section 1 for the correct Main Air Pressure Gauge setting. Refer to Low Air Pressure Switch in Section 3 for the correct adjustment procedure.
FAULT	Carton jam within the case sealer.	Remove the carton jam.
FAULT	Motor Overload Circuit Breaker has tripped.	Determine the cause of the motor overload condition (e.g., carton jam). Correct the problem, then reset the Overload Circuit Breaker by pressing its red STOP/RESET button, and then pressing its green START button.  Refer to Overload Circuit Breaker in Section 3 for the correct ampere setting.
FAULT	Carton too narrow, less than 5.5 inches [140 millimeters] wide.	Refer to Specifications in Section 1 for the correct box sizes.



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## 7. Illustrated Parts Breakdown

### 7-1. How to Order Replacement Parts

1. Refer to the following figures and their related lists of parts on the following pages to determine the individual part number and description.

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**✓ Note**

Complete descriptions have been included for most commercially available components. This will allow the customer/service person to obtain parts locally, if this is desired.

---

2. Order parts by machine model number, part number, description, and quantity required. (An order form is included at the end of this manual section).

**Minimum billing on parts is \$25.00. Replacement part prices are available on request.**

3. Replacement parts and part prices are available directly from:

3M Tape Dispenser Parts  
 241 Venture Drive  
 Amery, WI 54001-1325  
 715/268-8126  
 800/344-9883 (Outside WI) FAX# 715/268-8153

---

**✓ Note**

Outside the U.S., contact the local 3M subsidiary for parts order information.

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### 7-2. Spare Parts

A number of spare parts are provided with the case sealer that should be replaced periodically due to normal wear or breakage. The parts provided are items that should be reordered as they are consumed to keep the case sealer in good operating condition:

Part Number	Description	Quantity	Figure No.	Item No.
78-8070-1274-1	SPRING, Upper (Silver)	1	7-29	10
78-8017-9173-8	KNIFE, Cutoff	2	7-31	2
78-8052-6602-6	SPRING, Cutter	4	7-31	12
78-8070-1273-3	SPRING, Lower (Black)	1	7-34	10

These parts are available as a kit. The kit part number is 78-8098-8893-2.

### 7-3. Suggested Spare Parts

In addition to the preceding minimum spare parts, it is suggested that the following items be maintained as spare parts.

Part Number	Description	Quantity	Figure No.	Item No.
78-8057-6178-6	ROLLER, Buffing	1	7-29	5
78-8057-6179-4	ROLLER, Applying	1	7-28	15
78-8054-8841-4	DRIVE BELT	2	7-13	55
78-8114-4824-6	PHOTOCELL, E3F2-R2B4-P1-E	1	7-23	39
78-8054-8648-3	ROLLER, Compression	1	7-9	8
78-8052-6713-1	RING, Polyurethane, Side Belt Drive	4	7-14	17
78-8113-7030-9	SPRING, Torsion	2	7-31	18
78-8094-6472-6	MOTOR, 200/220V, 50/60 Hz, 3-Phase	1	7-13	64

7-4. Illustrations and Parts Lists

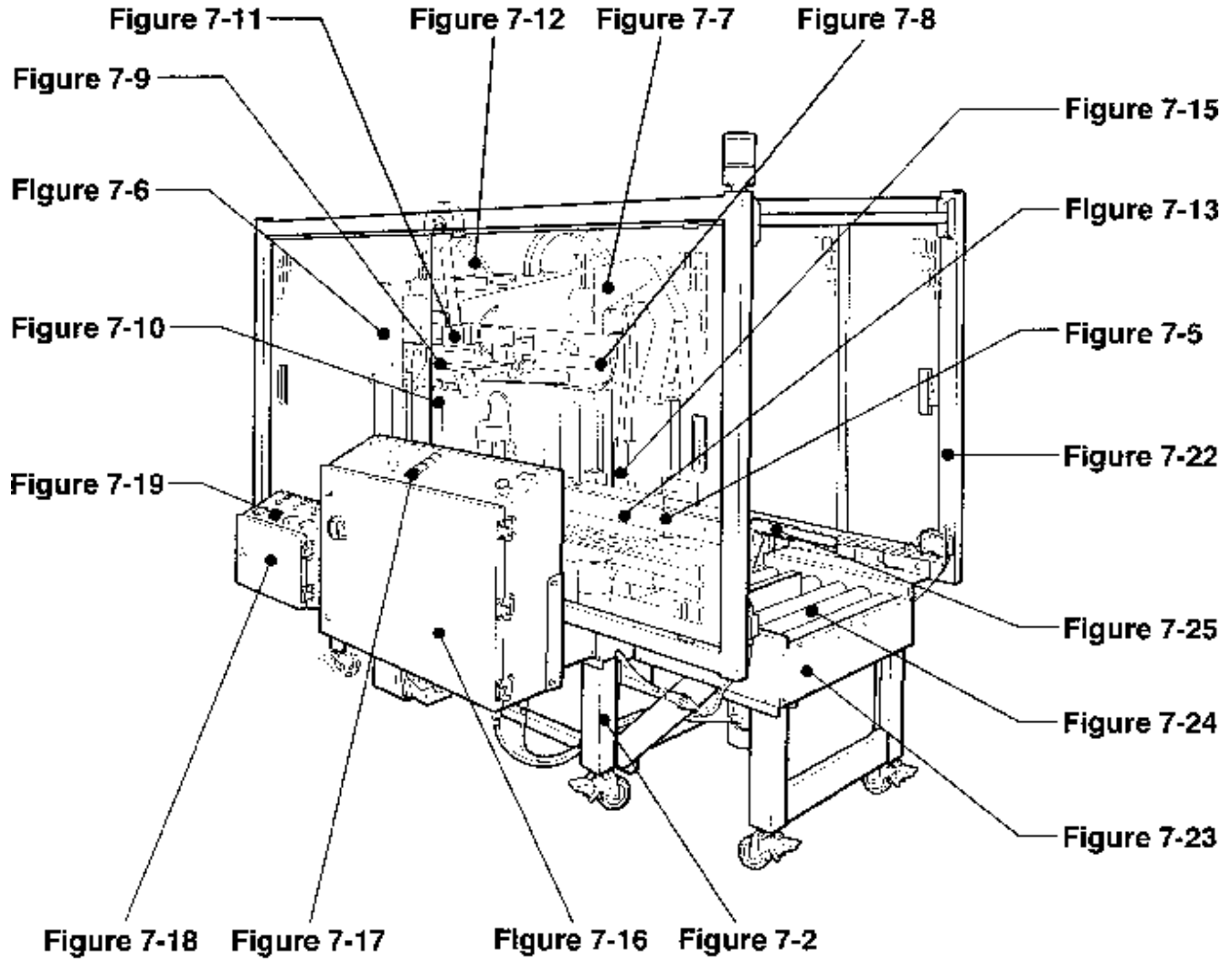


Figure 7-1. 800rf Case Sealer Breakdown

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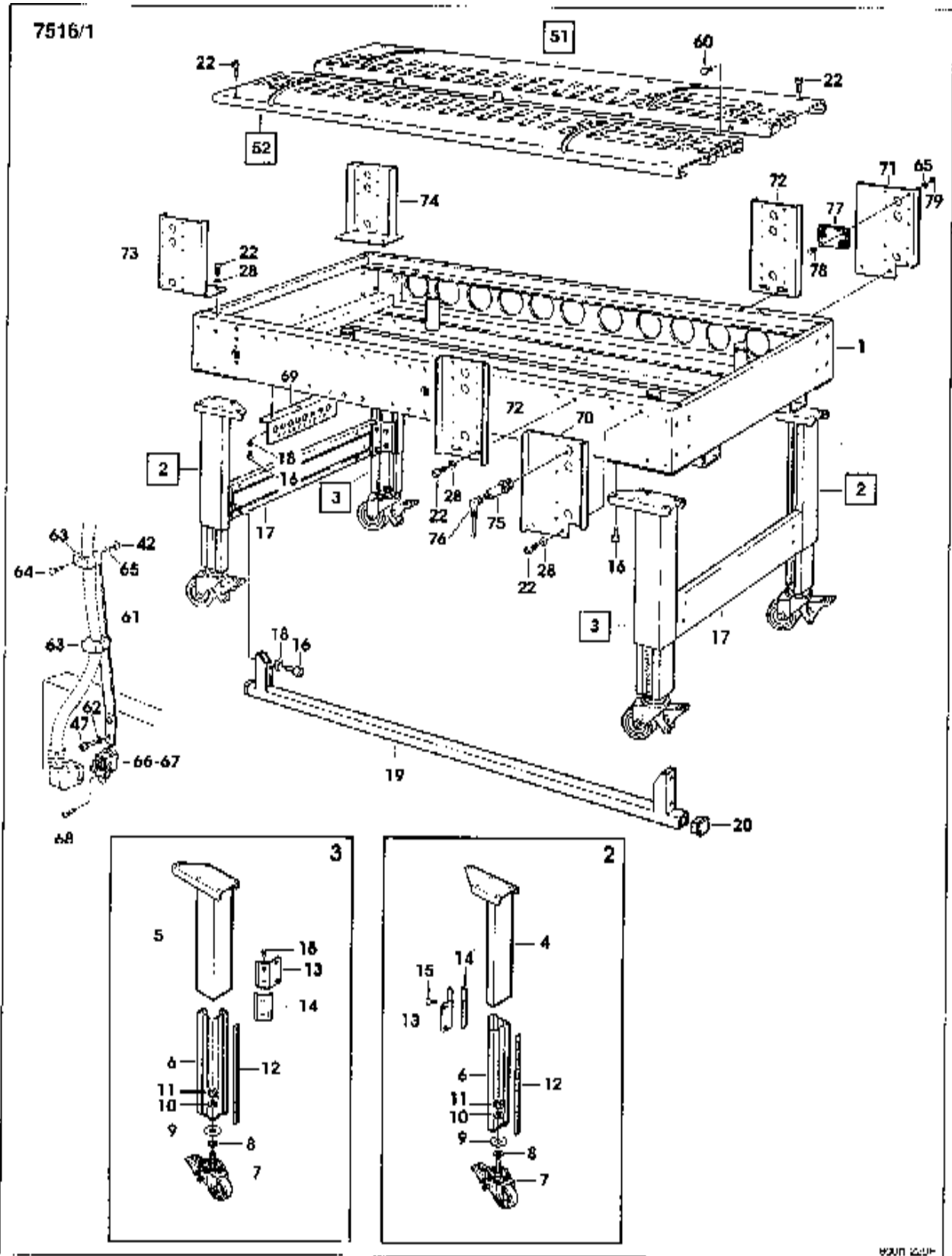


Figure 7-2. Conveyor Frame

## Parts List - Conveyor Frame

Item Number	Part Number	Description	Qty
1	78-8119-8588-2	BED ASSEMBLY, Conveyor	1
2	78-8076-5038-3	LEG ASSEMBLY, Right	2
3	78-8076-5039-1	LEG ASSEMBLY, Left	2
4	78-8076-5040-9	LEG, Right	2
5	78-8076-5041-7	LEG, Left	2
6	78-8052-6678-6	LEG, Inner	4
7	78-8060-7847-9	CASTER/100	4
8	78-8060-8124-2	SPACER, Caster	4
9	78-8060-7699-4	WASHER/12-45, 5 x 4	4
10	78-8017-9059-9	WASHER, Flat for M12 Screw	4
11	78-8060-7532-7	NUT, M12 Self-Locking	4
12	78-8052-6680-2	LABEL, Height	4
13	78-8060-7697-8	BRACKET, Special	4
14	78-8052-6677-8	CLAMP, Inner	4
15	26-1003-7963-0	SCREW, Soc. Hd., M8 x 16	10
16	26-1003-7964-8	SCREW, Soc. Hd., Hex Soc. Dr., M8 x 20	39
17	78-8119-8525-4	CROSS BAR, Leg w/nutserts	2
18	78-8017-9318-9	WASHER, Plain, Metric, 8mm	21
19	78-8076-5043-3	REINFORCEMENT, Leg	2
20	78-8060-7704-2	CAP, Plastic, 40 x 40	4
22	78-8060-7896-6	SCREW, Soc. Hd., Hex Hd., M6 x 14	32
28	26-1000-0010-3	WASHER, Flat M6	32
42	26-1003-6914-4	NUT, Plastic Insert M4	24
47	26-1003-7949-9	SCREW, Soc. Hd., Hex Soc., M5 x 12	12
51	78-8119-8530-4	CONVEYOR ASSEMBLY, Right	1
52	78-8119-8531-2	CONVEYOR ASSEMBLY, Left	1
60	26-1003-5829-5	SCREW, Hex Hd., M6 x 12	6
61	78-8076-5059-9	STRAP, Wire	2
62	78-8005-5741-1	WASHER, Flat, M5	4
63	78-8060-7630-9	LOCK, Tube	4
64	78-8010-7157-8	SCREW, Hex Hd., M4 x 10	4
65	78-8005-5740-3	WASHER, Metric, Plain 4mm Nick.	20
66	78-8060-7872-7	COVER PLUG, Straight	2

**Parts List - Conveyor Frame (Continued)**

<b>Item Number</b>	<b>Part Number</b>	<b>Description</b>	<b>Qty</b>
67	78-8060-7873-5	PLUG, Female	2
68	78-8028-8208-0	SCREW, 6P x 9,5	4
69	78-8119-8535-3	BRACKET	1
70	78-8119-8538-7	SUPPORT, Photocell	1
71	78-8119-8536-1	SUPPORT, Photocell	1
72	78-8119-8537-9	SUPPORT, Photocell	4
73	78-8119-8589-0	BRACKET, Photocell, Rear, Left	1
74	78-8119-8590-8	BRACKET, Photocell, Rear, Right	1
75	78-8114-4824-6	PHOTOCELL, OMROM, E3F2, R2B4, P1, E	4
76	78-8114-4825-3	CONNECTOR, CS, A2, 02, S, 05	4
77	78-8076-5057-3	REFLECTOR, OMROM, E39-R1	4
78	83-0002-7336-3	SCREW, Hex Hd., M4 x 14 Zinc. Pl.	8
79	78-8010-7416-8	NUT, Metric, Hex, Steel, M4	8



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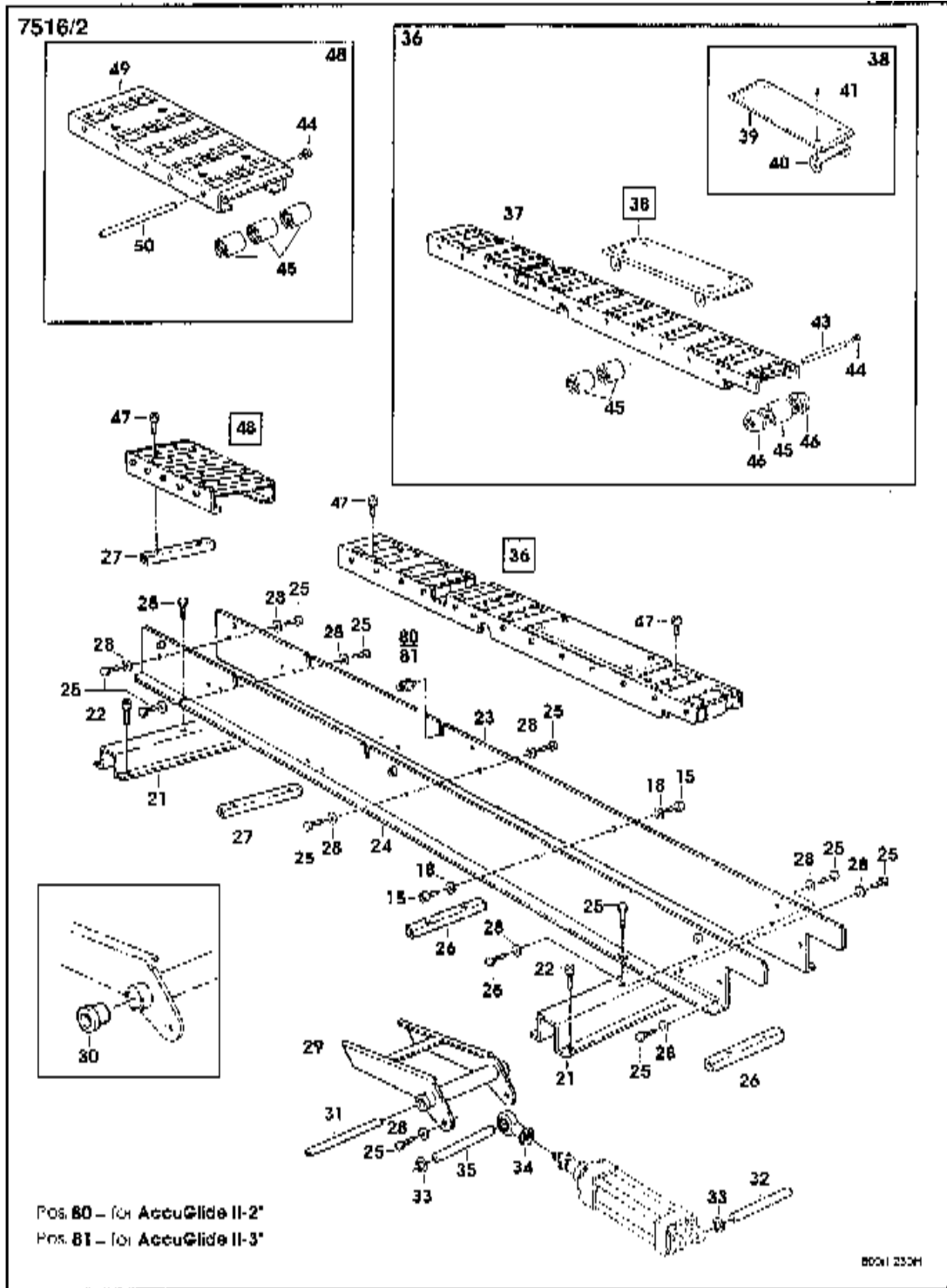


Figure 7-3. Conveyor Center Bed and Fork

## Parts List - Conveyor Center Bed and Fork

Item Number	Part Number	Description	Qty
15	26-1003-7963-0	SCREW, Soc. Hd., M8 x 16	10
18	78-8017-9318-9	WASHER, Plain, Metric, 8mm	21
21	78-8076-5060-7	SUPPORT	2
22	78-8060-7896-6	SCREW, Soc. Hd., Hex Hd., M6 x 14	32
23	78-8060-7712-5	SHOULDER, Lower, Right	1
24	78-8060-7710-9	SHOULDER, Lower, Left	1
25	78-8010-7169-3	SCREW, Metric, M6 x 12, Hex Hd.	16
26	78-8060-7714-1	STRIP	2
27	78-8060-7722-4	SPACER, L=144	2
28	26-1000-0010-3	WASHER, Flat M6	32
29	78-8076-5045-8	FORK	1
30	78-8060-7718-2	BUSHING	2
31	78-8060-7717-4	SHAFT, Flap Straightener	1
32	78-8060-7721-6	STUD, Cylinder Mount	1
33	78-8052-6733-9	RING, Special M10	4
34	78-8057-5748-7	MOUNT, Cylinder Rod End	1
35	78-8060-7719-0	SHAFT, 10 x 115	1
36	78-8119-8526-2	CONVEYOR ASSEMBLY, Center	1
37	78-8076-5051-6	ROLLER ASSEMBLY, Center	1
38	78-8119-8527-0	SLIDE ASSEMBLY, Center	1
39	78-8119-8528-8	LARGE SLIDE FOR CONVEYOR	1
40	78-8119-8529-6	BRACKET, Large Slide	2
41	78-806060-78039257-9-2	SCREW, Phillip Head, M4 x 10RIVET	20
42	26-1003-6914-4	NUT, Plastic Insert, M4	24
43	78-8060-7708-3	SHAFT, 8 x 92	11
44	78-8010-7163-6	SCREW, Metric, M5 x 10, Hex Hd.	16
45	78-8060-7693-7	ROLLER, 32 x 38	98
46	78-8060-7692-9	ROLLER, Tappert	22
47	26-1003-7949-9	SCREW, Soc. Hd., Hex Soc., M5 x 12	12
48	78-8076-5052-4	ROLLER CONVEYOR ASSEMBLY, Right	1
49	78-8076-5053-2	ROLLER ASSEMBLY, Rear	1
50	78-8060-7706-7	SHAFT, 8 x 132	5
80	78-8060-8460-0	STUD, 2-inch Bottom Head Mount	4
81	78-8055-0745-2	STUD, 3-inch Bottom Head Mount	4

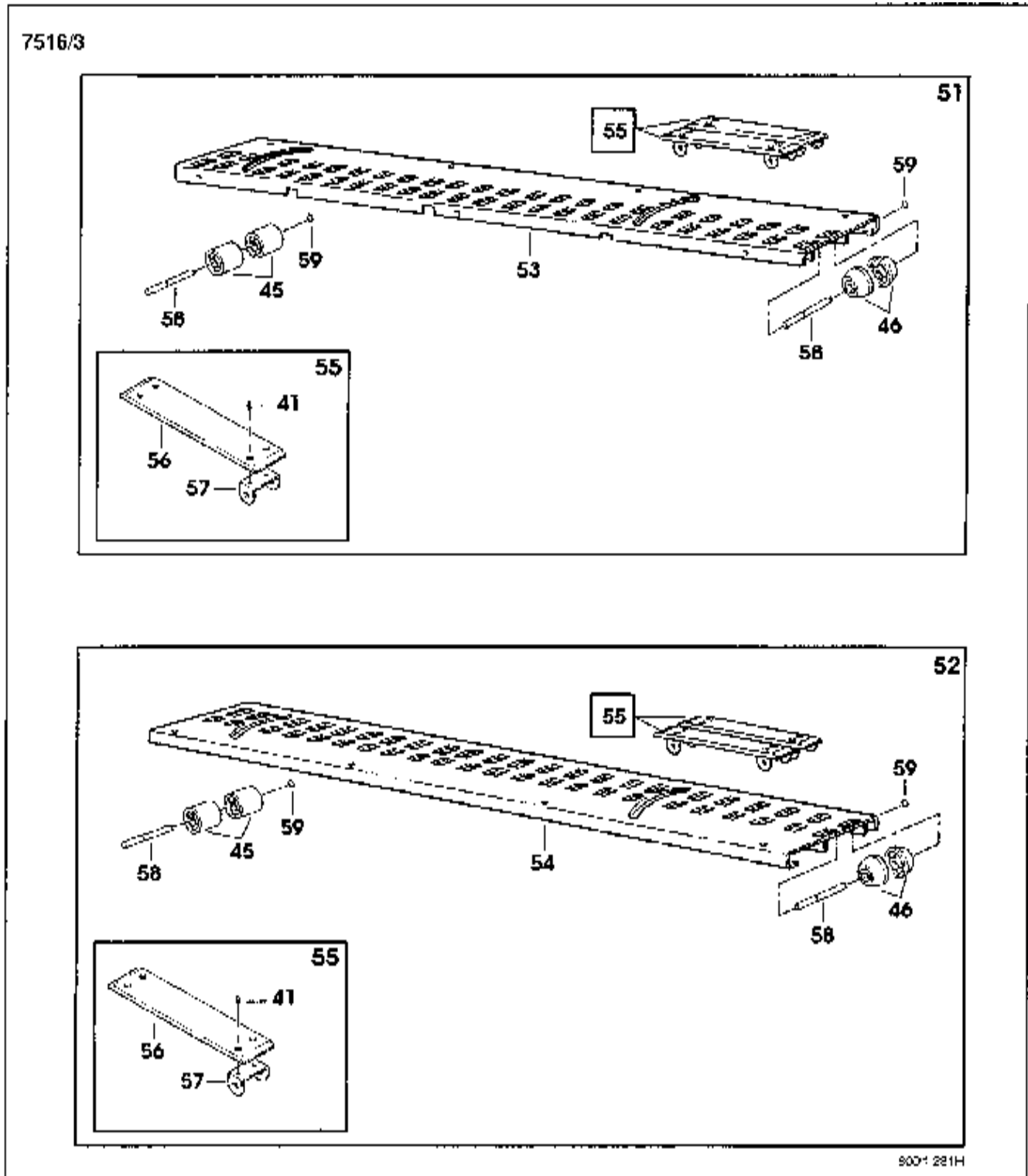
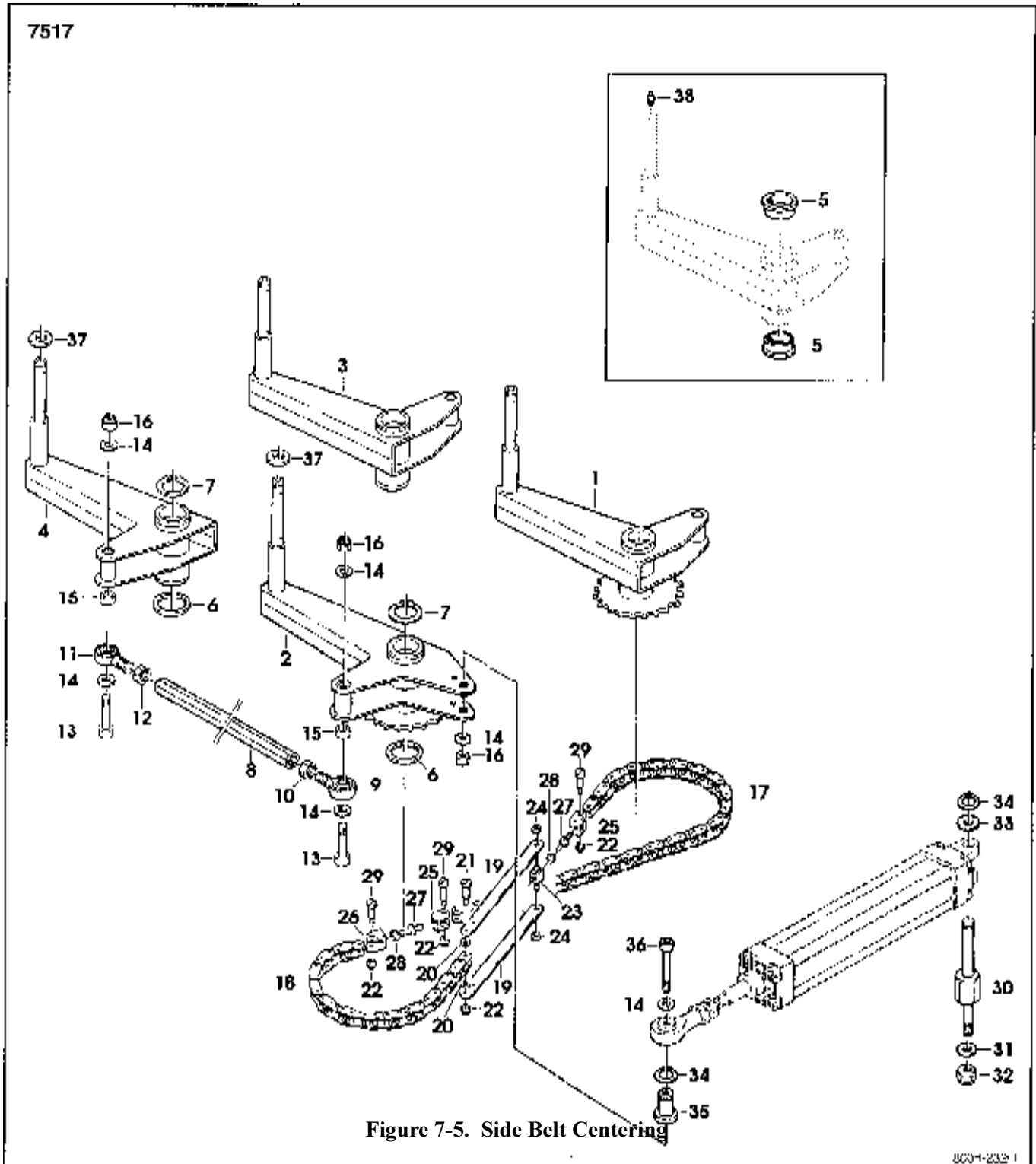


Figure 7-4. Conveyor Bed Rollers

## Parts List - Conveyor Bed Rollers

Item Number	Part Number	Description	Qty
41	78-80178060-92577803-92	SCREW, Phillips Head, M4 x 10RIVET	20
42	26-1003-6914-4	NUT, Plastic Insert, M4	24
45	78-8060-7693-7	ROLLER, 32 x 38	98
46	78-8060-7692-9	ROLLER, Tappert	22
51	78-8119-8530-4	CONVEYOR ASSEMBLY, Right	1
52	78-8119-8531-2	CONVEYOR ASSEMBLY, Left	1
53	78-8091-0387-8	CONVEYOR, Right	1
54	78-8091-0388-6	CONVEYOR, Left	1
55	78-8119-8532-0	SLIDE ASSEMBLY, Side	4
56	78-8119-8533-8	NARROW SLIDE FOR CONVEYOR	4
57	78-8119-8534-6	BRACKET, Narrow Slide	8
58	78-8060-7965-9	SHAFT, 8 x 120, Hex Hd.	42
59	78-8060-8035-0	E-RING, 7DIN6799	42



## Parts List - Side Belt Centering

Item Number	Part Number	Description	Qty
1	78-8114-4867-5	ARM ASSEMBLY, Front, Right	1
2	78-8114-4868-3	ARM ASSEMBLY, Front, Left	1
3	78-8114-4869-1	ARM ASSEMBLY, Rear, Right	1
4	78-8114-4870-9	ARM ASSEMBLY, Rear, Left	1
5	78-8076-4791-8	BUSHING	8
6	78-8060-7534-3	WASHER	4
7	78-8060-7521-0	LOCK RING	4
8	78-8060-7527-7	ROD	2
9	78-8076-4793-4	BALL JOINT, KA 10 D	2
10	78-8060-7525-1	NUT, M10, Right, Flat	2
11	78-8076-4794-2	BALL JOINT, KAL 10 D	2
12	78-8060-7546-7	NUT, M10, Left, Flat	2
13	78-8076-4796-7	SCREW, Soc. Hd., Hex Hd., M10 x 80	4
14	78-8052-6566-3	WASHER, Friction	10
15	78-8076-4795-9	SPACER	4
16	26-1003-6918-5	NUT, Plastic Insert, M10 Hex	5
17	78-8060-7518-6	CHAIN, 3/8-inch, 60 Pitch Long	1
18	78-8054-8777-0	CHAIN, 3/8-inch Pitch, 41 Pitch Long	1
19	78-8054-8787-9	LINK, Chain	2
20	78-8054-8783-8	WASHER, Special	2
21	78-8060-7519-4	SCREW, M3 x 25	1
22	78-8059-5517-2	NUT, Self-Locking, M3, Zinc. Pl.	4
23	78-8054-8784-6	BLOCK, Chain	1
24	78-8056-3945-3	E-RING, M4	2
25	78-8054-8786-1	CONNECTOR, Chain	2
26	78-8054-8788-7	CONNECTOR, Chain	1
27	78-8054-8785-3	ROD, Threaded Right/Left	2
28	78-8010-7418-4	NUT, Metric, Hex, Stl., M6	2
29	78-8060-7520-2	SCREW, M3 x 20	3
30	78-8114-5093-7	STUD, Cylinder	1
31	78-8017-9059-9	WASHER, Flat for M12 Screw	1
32	78-8060-7532-7	NUT, Self-Locking, M12	1
33	78-8114-5094-5	WASHER, Special	1

**Parts List - Side Belt Centering (Continued)**

<b>Item Number</b>	<b>Part Number</b>	<b>Description</b>	<b>Qty</b>
34 .....	78-8060-7533-5 .....	LOCK RING .....	2
35 .....	78-8114-5095-2 .....	BUSHING, Cylinder .....	1
36 .....	78-8060-7535-0 .....	SCREW, M10 x 60, Soc. Hd., Hex Soc. ....	1
37 .....	78-8060-7541-8 .....	WASHER .....	4
38 .....	78-8114-4871-7 .....	NIPPLE, Grease .....	4



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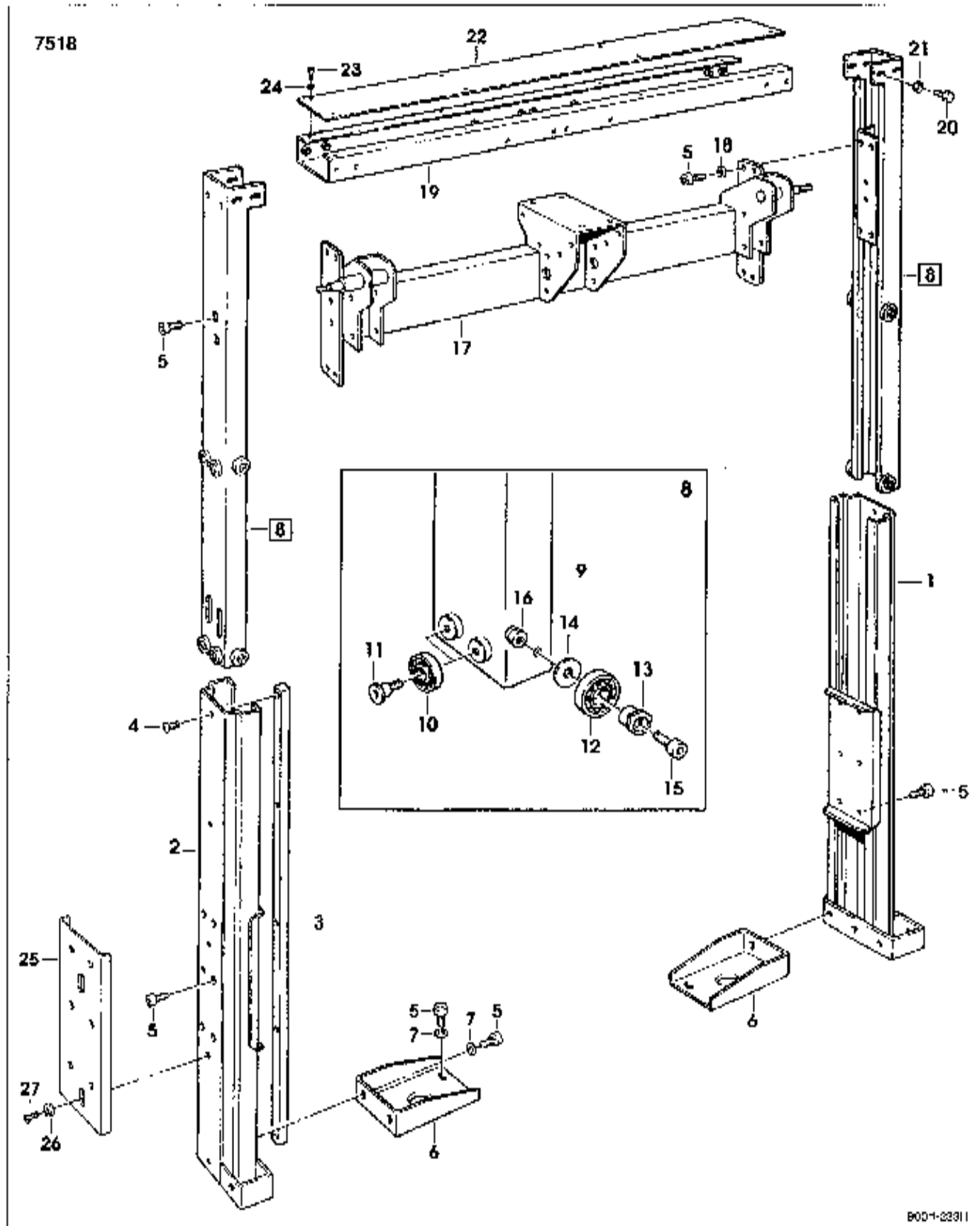


Figure 7-6. Column Assembly

## Parts List - Column Assembly

Item Number	Part Number	Description	Qty
1	78-8114-5096-0	COLUMN ASSEMBLY, Right	1
2	78-8114-5097-8	COLUMN ASSEMBLY, Left	1
3	78-8114-5098-6	GUIDE, Column	2
4	78-8076-4503-7	SCREW, M6 x 12	6
5	26-1003-7964-8	SCREW, Soc. Hd., Hex Soc. Dr., M8 x 20	28
6	78-8100-0894-2	BRACKET, Column	2
7	78-8017-9318-9	WASHER, Plain, Metric, 8mm	8
8	78-8076-5068-0	COLUMN ASSEMBLY, Inner	2
9	78-8076-5069-8	COLUMN, Inner	2
10	78-8059-5625-3	BEARING	8
11	78-8076-4815-5	SCREW, Bearing	8
12	26-1000-4350-9	BEARING, 6002, 2RS	8
13	78-8076-4816-3	BUSHING, Eccentric	8
14	78-8076-5070-6	SPACER	8
15	26-1003-7957-2	SCREW, Soc. Hd., Hex Hd., M6 x 16	8
16	26-1003-6916-9	NUT, Locking, Plastic Insert, M6	8
17	78-8114-5099-4	CROSS BAR, Upper Assembly	1
18	78-8005-5736-1	LOCKWASHER, for M8 Screw	8
19	78-8119-8500-7	CROSS BAR	1
20	78-8032-0375-7	SCREW, Metric, Hex Hd., M6 x 16	8
21	26-1000-0010-3	WASHER, Flat M6	8
22	78-8094-6418-9	COVER	1
23	78-8017-9257-9	SCREW, Phillips Hd., M4 x 10	8
24	78-8005-5740-3	WASHER, Plain, Metric, 4mm, Nick.	8
25	78-8119-8501-5	GUARD	2
26	78-8091-0581-6	STOP, Protection	4
27	26-1001-9843-6	SCREW, Flat Soc. Hd., M6 x 16	4

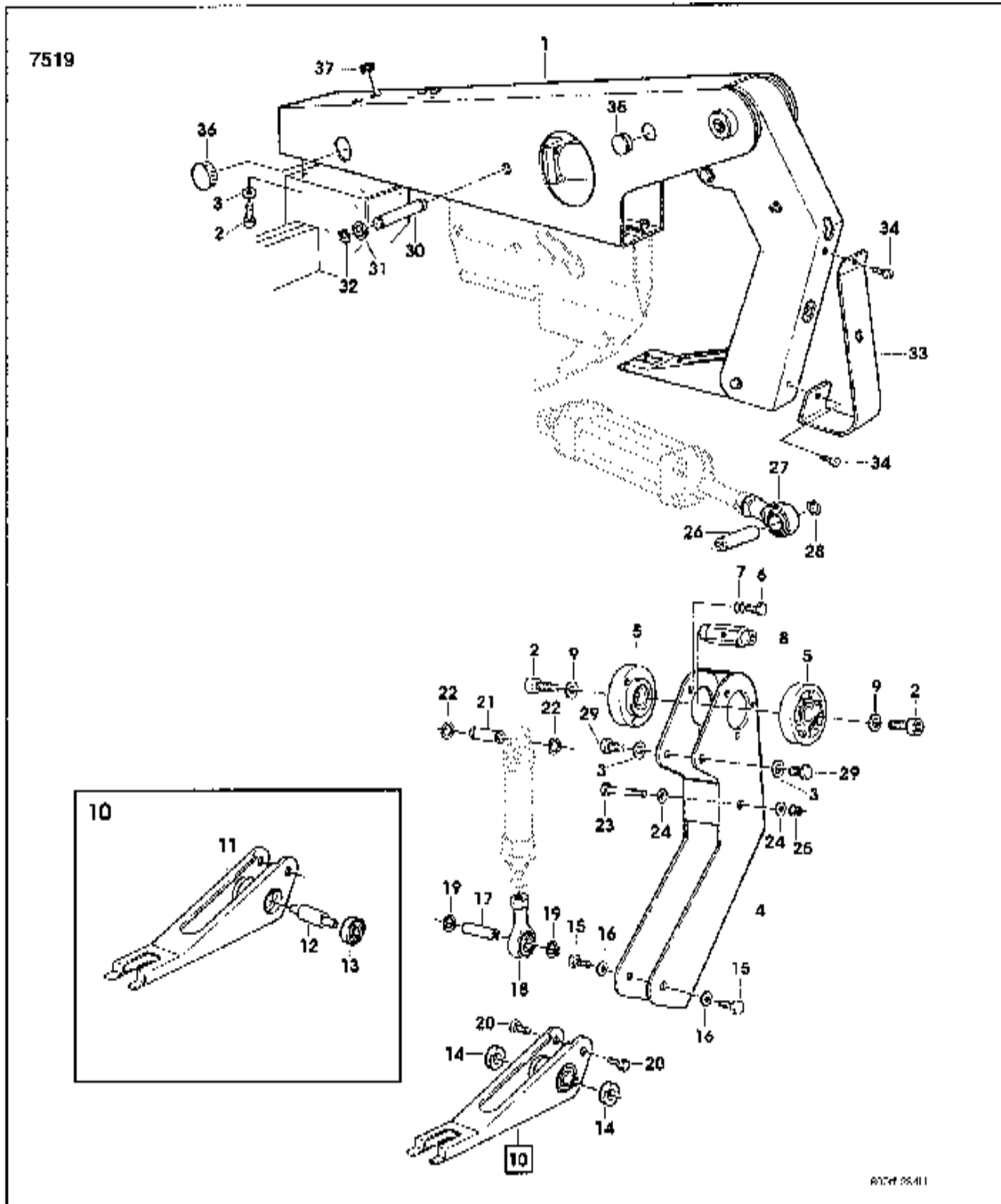


Figure 7-7. Flap Folder Assembly

## Parts List - Flap Folder Assembly

Item Number	Part Number	Description	Qty
1	78-8119-8502-3	SUPPORT, Flap Folder	1
2	26-1003-7963-0	SCREW, Soc. Hd., M8 x 16	6
3	78-8017-9318-9	WASHER, Plain, Metric, 8mm	76
4	78-8119-8503-1	ARM, Flap Folder	21
5	78-8076-5442-7	FLANGE ASSEMBLY	2
6	26-1003-5829-5	SCREW, Hex Hd., M6 x 12	6
7	78-8091-0468-6	WASHER, Dented, M6	6
8	78-8119-8504-9	STUD	1
9	78-8100-0833-0	WASHER, M8	2
10	78-8091-0360-5	FLAP FOLDER ASSEMBLY, Rear	1
11	78-8091-0553-5	FLAP FOLDER, Rear	1
12	78-8091-0554-3	SHAFT, Flap Folder	1
13	78-8023-2410-9	BEARING, 6000, 2RS	2
14	78-8091-0389-4	SPACER, Bearing	2
15	78-8010-7169-3	SCREW, Metric, Hex Hd., M6 x 12	2
16	26-1000-0010-3	WASHER, Flat, M6	2
17	78-8060-7764-6	SPACER, 10 x 39	1
18	78-8057-5748-7	MOUNT, Cylinder Rod End	1
19	78-8052-6733-9	RING, Special M10	2
20	26-1003-5828-7	SCREW, Spec., Hex Hd., M6 x 10	2
21	78-8054-8946-1	SHAFT, 5/8 x 51mm	1
22	78-8052-6732-1	RING, Special M8	2
23	78-8057-5728-9	SCREW, Hex Hd., M5 x 60	1
24	78-8005-5741-1	WASHER, Flat, M5	2
25	26-1005-6859-6	NUT, Self-Locking, M5	1
26	78-8054-8944-6	SHAFT, 12 x 51mm	1
27	78-8057-5747-9	MOUNT, Cylinder Rod End	1
28	78-8656-3972-4	E-RING, M12	2
29	26-1003-5841-0	SCREW, M8 x 16	2
30	78-8054-8937-0	SHAFT, 12 x 100mm	1
31	78-8017-9059-9	WASHER, Flat for M12 Screw	2
32	78-8056-3965-1	RING, 8 DIN 6799	2
33	78-8060-7761-2	EXTENSION, Flap Folder	1

**Parts List - Flap Folder Assembly (Continued)**

<b>Item Number</b>	<b>Part Number</b>	<b>Description</b>	<b>Qty</b>
34 .....	78-8060-7896-6 .....	SCREW, Soc. Hd., Hex Hd., M6 x 14 .....	2
35 .....	78-8060-7885-9 .....	CAP, End .....	1
36 .....	78-80768060-46358184-76 .....	GROMMET/32CAP .....	1
37 .....	78-8060-7758-8 .....	FAIRLEAD/20 .....	2
38 .....	78-8017-9301-5 .....	SCREW, Hex Hd., M8 x 25 .....	1

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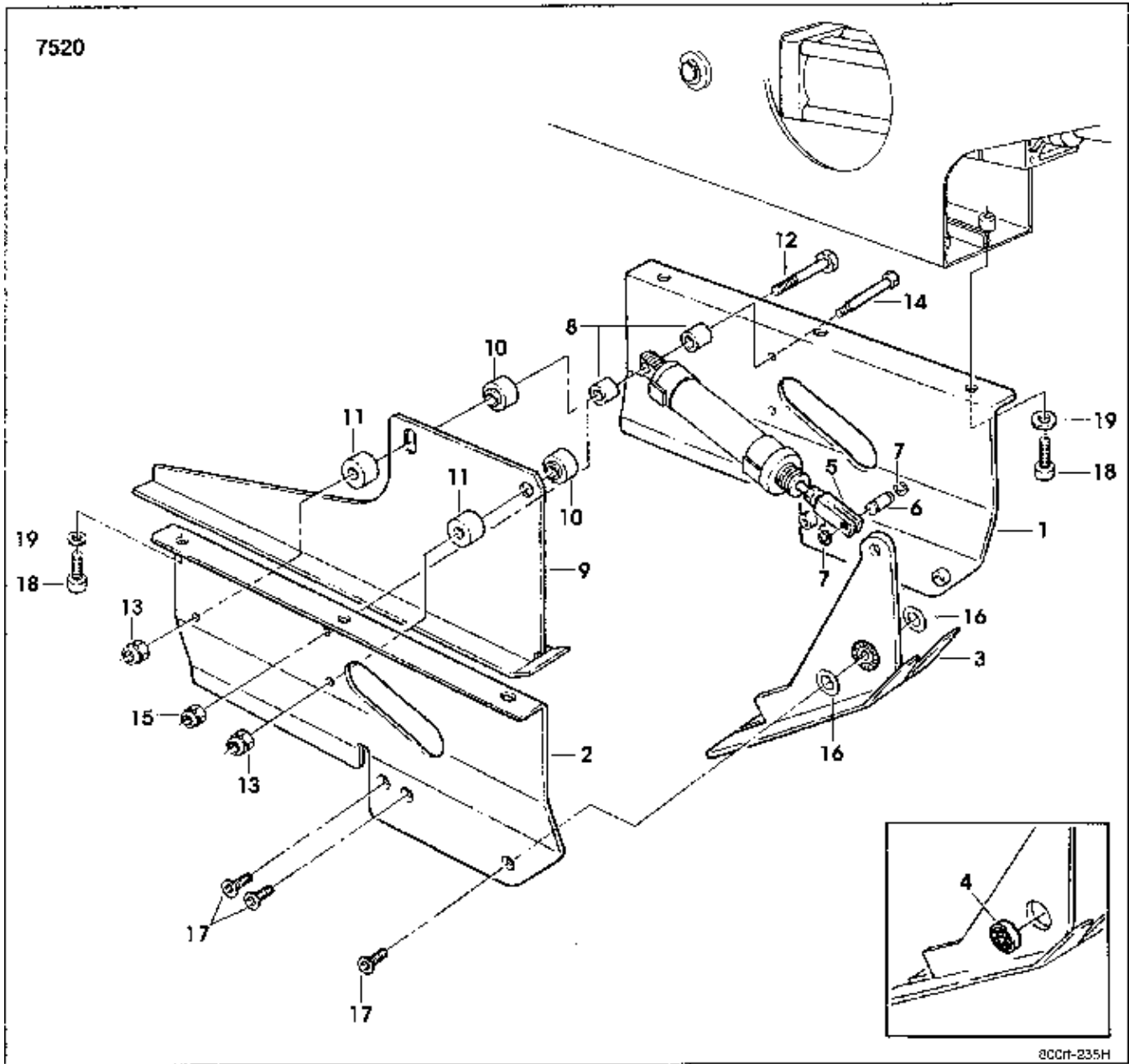


Figure 7-8. Paddle Assembly



## Parts List - Paddle Assembly

Item Number	Part Number	Description	Qty
1	78-8119-8507-2	SUPPORT ASSEMBLY, Guide, Right	1
2	78-8119-8508-0	SUPPORT ASSEMBLY, Guide, Left	1
3	78-8119-8509-8	PADDLE, Box Height	1
4	78-8060-7568-1	BEARING, 618/9	1
5	78-8076-5081-3	FORK, Cylinder	1
6	78-8060-7566-5	STUD, Fork	1
7	78-8060-7565-7	RING	2
8	78-8060-7558-2	SPACER, Cylinder	2
9	78-8076-5080-5	GUIDE, Box	1
10	78-8060-7561-6	SPACER	2
11	78-8060-7562-4	SPACER	2
12	26-1002-5836-2	SCREW, Hex Hd., M6 x 40	2
13	26-1003-6916-9	NUT, Locking, Plastic Insert, M6	2
14	78-8114-4903-8	SCREW, Special, M5	1
15	26-1005-6859-6	NUT, Self-Locking, M5	1
16	78-8119-8510-6	WASHER, Special	2
17	78-8017-9170-4	SCREW, Phillips, FH, M4 x 8	3
18	26-1003-7957-2	SCREW, Soc. Hd., Hex Hd., M6 x 16	6
19	26-1000-0010-3	WASHER, Flat, M6	6

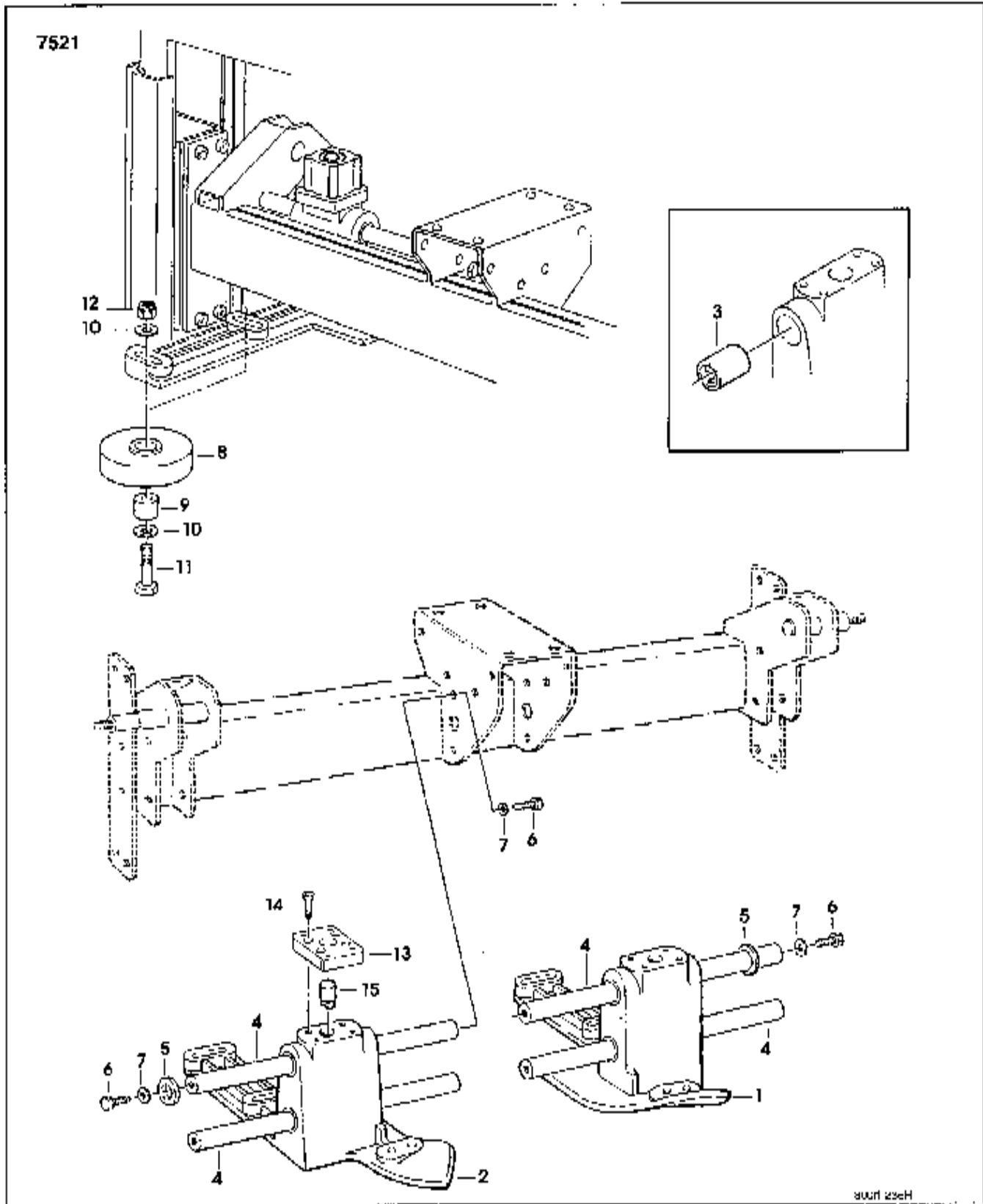


Figure 7-9. Side Belt Rail Assembly

## Parts List - Side Belt Rail Assembly

Item Number	Part Number	Description	Qty
1	78-8114-4904-6	SIDE FLAP FOLDER, Right	1
2	78-8076-5083-9	SIDE FLAP FOLDER, Left	1
3	78-8060-7555-8	BEARING, L-Bar	8
4	78-8060-7554-1	STUD, Flap Folder	4
5	78-8060-7747-1	RUBBER RING	4
6	26-1003-5841-0	SCREW, M8 x 16	8
7	78-8017-9318-9	WASHER, Plain, Metric, 8mm	8
8	78-8054-8648-3	ROLLER, Pressure	4
9	78-8055-0622-3	BUSHING	4
10	26-1004-5507-5	WASHER, M8	8
11	78-8070-1594-2	SCREW, Hex Hd., M8 x 60	4
12	78-8017-9313-0	NUT, Self-Locking, M8, Nick. Pl.	4
13	78-8119-8511-4	SPACER	2
14	78-8023-2334-1	SCREW, Soc. Hd., Hex Soc., M6 x 25	8
15	78-8119-8512-2	BUMPER	2

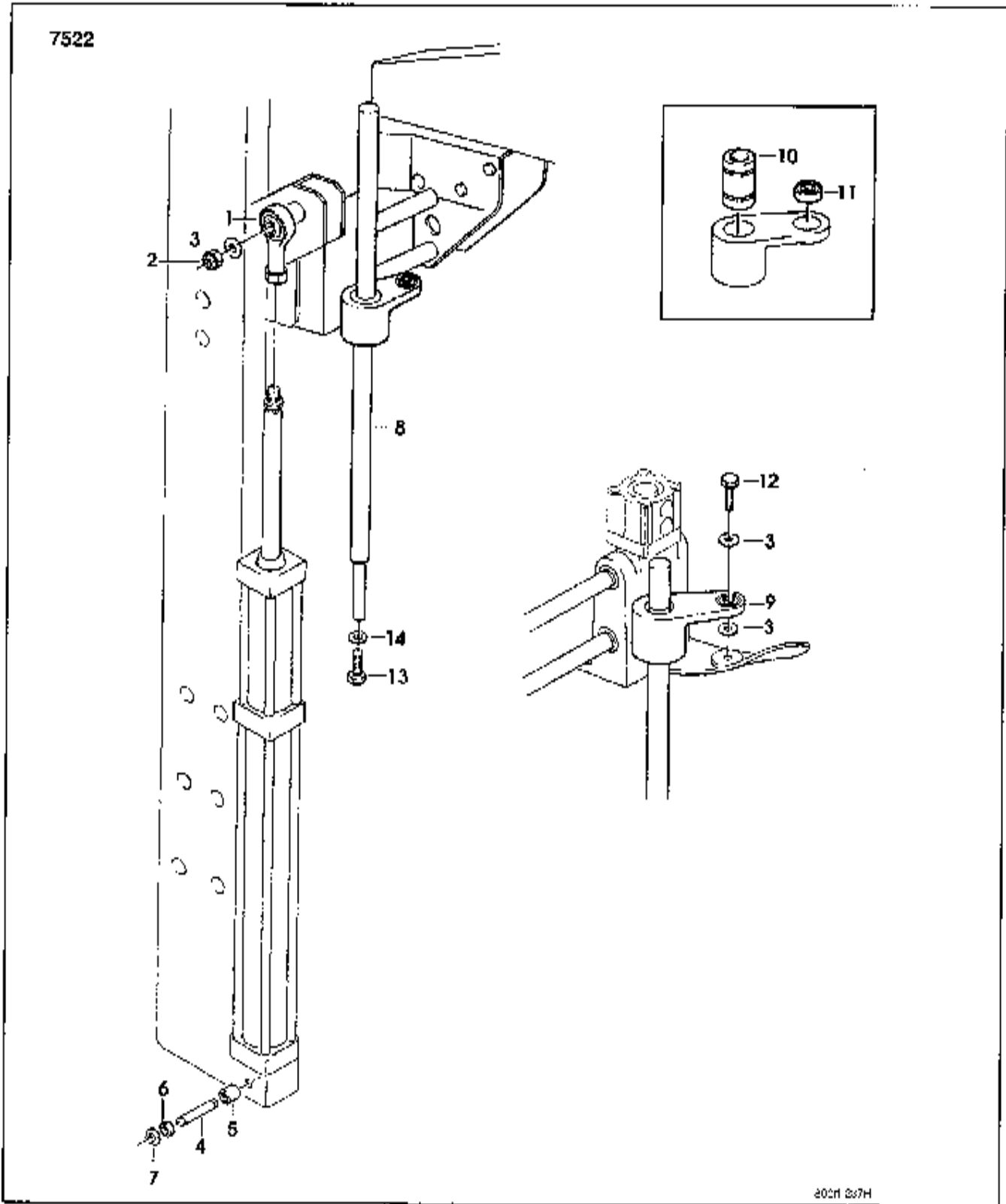


Figure 7-10. Head Cylinder Assembly

## Parts List - Head Cylinder Assembly

Item Number	Part Number	Description	Qty
1	78-8057-5747-9	MOUNT, Cylinder Rod End	2
2	26-1003-6918-5	NUT, Plastic Insert, Hex, M10	2
3	78-8052-6566-3	WASHER, Friction	6
4	78-8094-6335-5	STUD, Cylinder	2
5	78-8076-5086-2	SPACER	2
6	78-8060-7754-7	SPACER, Column Cylinder	2
7	78-8056-3965-1	RING, 8 DIN 6799	4
8	78-8060-7748-9	ROD, L=583	2
9	78-8076-5087-0	ROD, Connecting	2
10	78-8060-7752-1	BEARING, L-Bar, 20-32 x 45	2
11	78-8076-5225-6	JOINT	2
12	78-8076-5088-8	SCREW, Hex Hd., M10 x 30	2
13	26-1003-5841-0	SCREW, M8 x 16	2
14	26-1004-5507-5	WASHER, M8	2

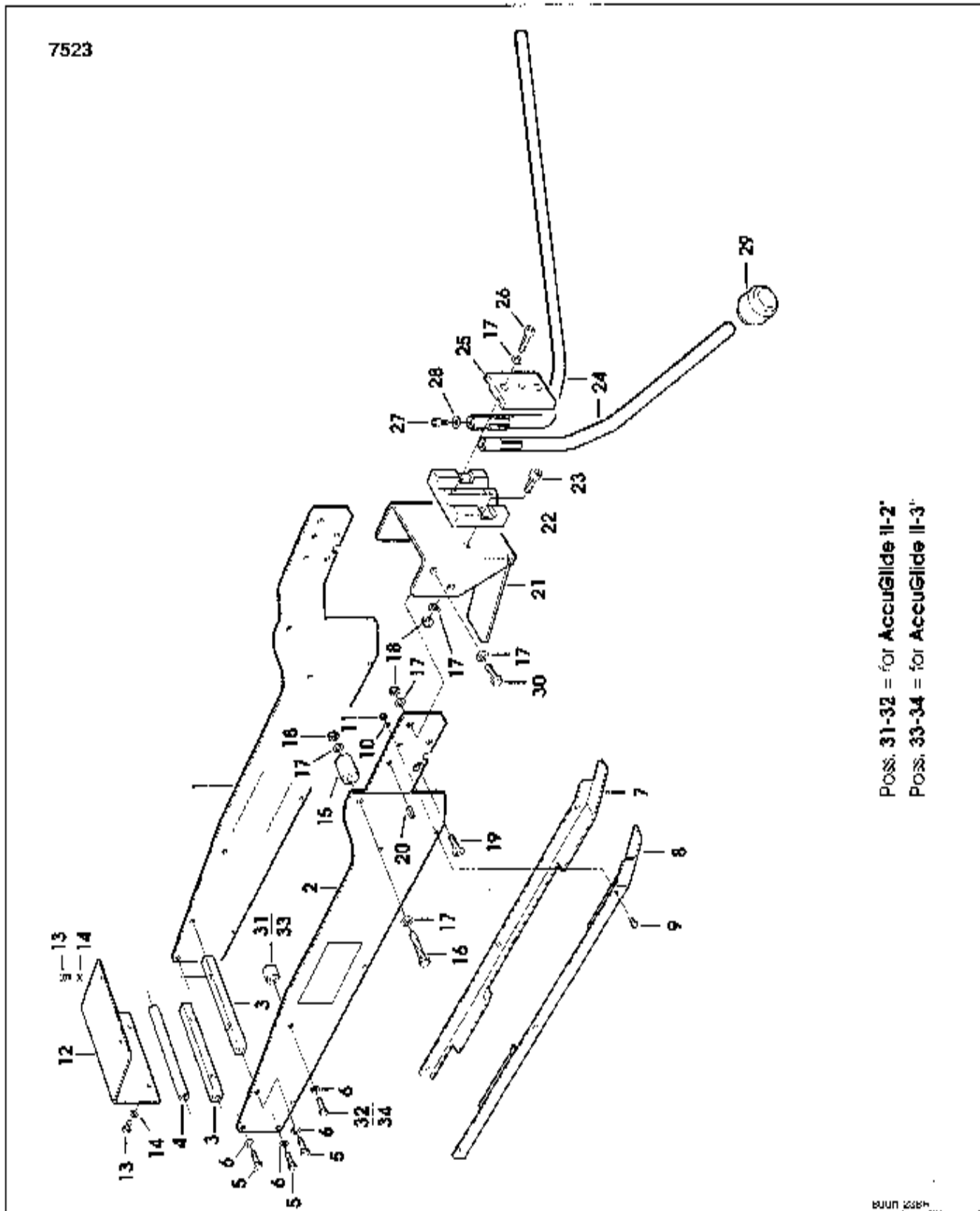


Figure 7-11. Upper Tape Head Mount

## Parts List - Upper Tape Head Mount

Item Number	Part Number	Description	Qty
1	78-8122-6717-3	FRAME, Right, Upper Head, w/English Label	1
2	78-8122-6718-1	FRAME, Left, Upper Head, w/English Label	1
3	78-8054-8931-3	SPACER, 10 x 10 x 140mm	2
4	78-8054-8929-7	SPACER, 10 x 140mm	1
5	78-8032-0375-7	SCREW, Metric, Hex Hd., M6 x 16	10
6	26-1000-0010-3	WASHER, Flat, M6	14
7	78-8060-7769-5	SKI, Right	1
8	78-8060-7770-3	SKI, Left	1
9	78-8010-7157-8	SCREW, Hex Hd., M4 x 10	6
10	78-8005-5740-3	WASHER, Plain, Metric, 4mm, Nick.	6
11	26-1003-6914-4	NUT, Plastic Insert, M4	6
12	78-8119-8541-1	PLATE, Rear	1
13	78-8010-7163-6	SCREW, Metric, Hex Hd., M5 x 10	4
14	78-8005-5741-1	WASHER, Flat, M5	4
15	78-8054-8933-9	SPACER, 8,5/20 x 25mm	2
16	26-1014-4538-0	SCREW, Hex Hd., M8 x 45	2
17	78-8017-9318-9	WASHER, Plain, Metric, 8mm	16
18	78-8017-9313-0	NUT, Self-Locking, M8, Nick. Pl.	10
19	78-8054-8567-3	SCREW, Soc. Hd., Special	2
20	78-8100-0895-9	PIN, Roll, 6 x 12	4
21	78-8119-8542-9	SLIDE FRONT	1
22	78-8100-1077-3	BLOCK	1
23	26-1003-7965-5	SCREW, Soc. Hd., Hex Soc., M8 x 25	2
24	78-8119-8543-7	SIDE FLAP FOLDER	2
25	78-8119-8544-5	CLAMP, Flap Folder	1
26	78-8060-7895-8	SCREW, M8 x 35	2
27	78-8010-7209-7	SCREW, Soc. Hd., M6 x 12	2
28	78-8042-2919-9	WASHER, Triple, M6	2
29	78-8060-7869-3	PROTECTION, Rods, 12AF	2
30	78-8017-9301-5	SCREW, Hex Hd., M8 x 25	4
31	78-8054-8935-4	SPACER	4
32	26-1003-5833-7	SCREW, Hex Hd., 6 x 30	4
33	78-8076-5036-7	STUD, Mounting, 3-inch Top Head	4
34	78-8010-7193-3	SCREW, Metric, Hex Hd., M6 x 20	4

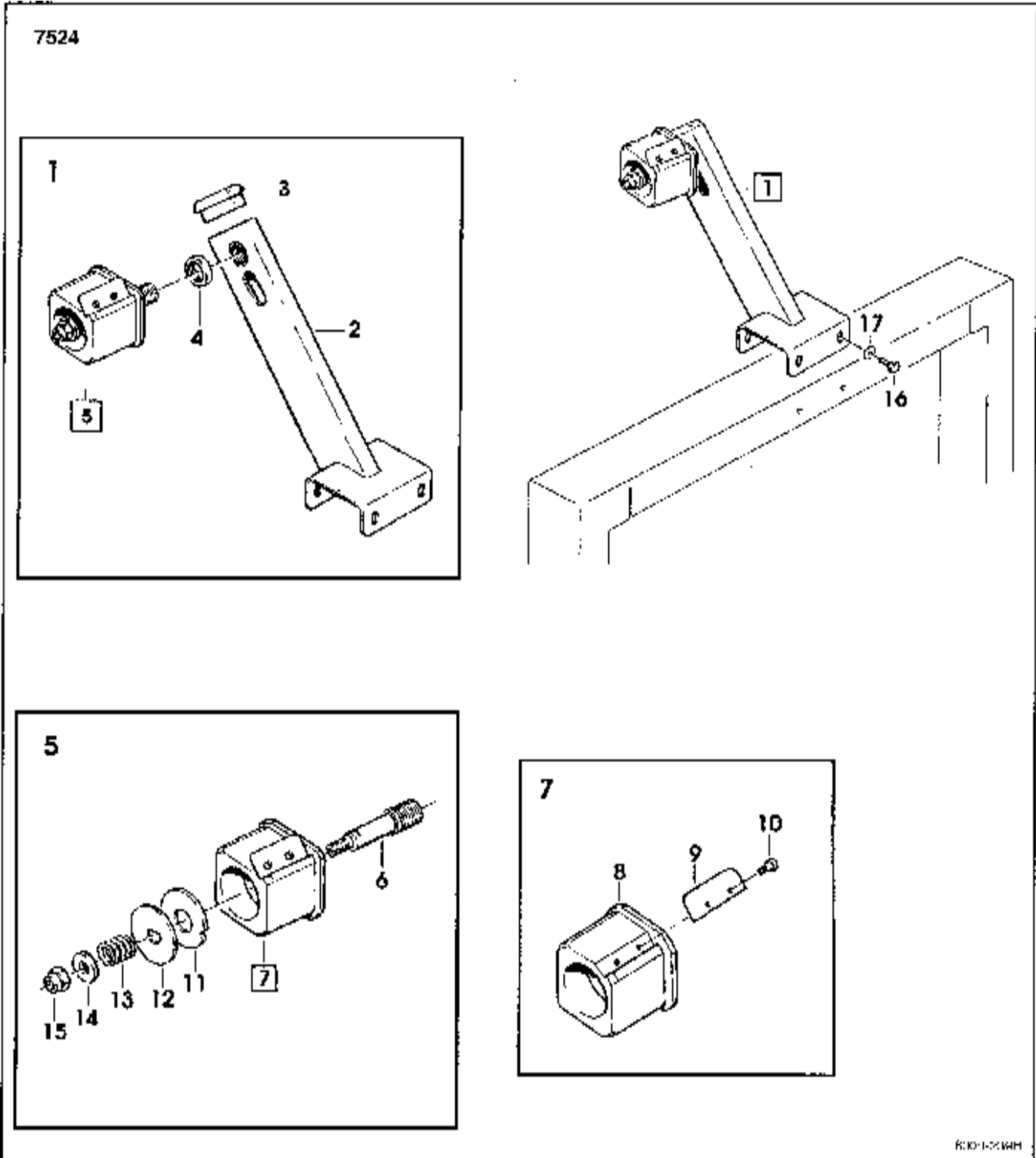


Figure 7-12. Upper Tape Drum Bracket Assembly



## Parts List - Upper Tape Drum Bracket Assembly

Item Number	Part Number	Description	Qty
1	78-8094-6446-0	BRACKET ASSEMBLY, Core Holder	1
2	78-8091-0605-3	BRACKET, Core Holder	1
3	78-8070-1568-6	CAP, Bracket	1
4	78-8017-9169-6	NUT, M18 x 1	1
5	78-8060-8474-1	TAPE DRUM ASSEMBLY, 2-inch Head	1
6	78-8076-4519-3	SHAFT, Tape Drum	1
7	78-8070-1569-4	TAPE DRUM ASSEMBLY, 2-inch Wide	1
8	78-8052-6749-5	TAPE DRUM	1
9	78-8052-6268-6	LEAF SPRING	1
10	26-1002-5753-9	SCREW, Self Tapping	2
11	78-8060-8172-1	WASHER, Friction	1
12	78-8052-6271-0	WASHER, Tape Drum	1
13	78-8100-1048-4	SPRING, Core Holder	1
14	78-8052-6566-3	WASHER, Friction	1
15	78-8017-9077-1	NUT, Self-Locking, M10 x 1	1
16	78-8032-0375-7	SCREW, Metric, Hex Hd., M6 x 16	4
17	26-1000-0010-3	WASHER, Flat, M6	4

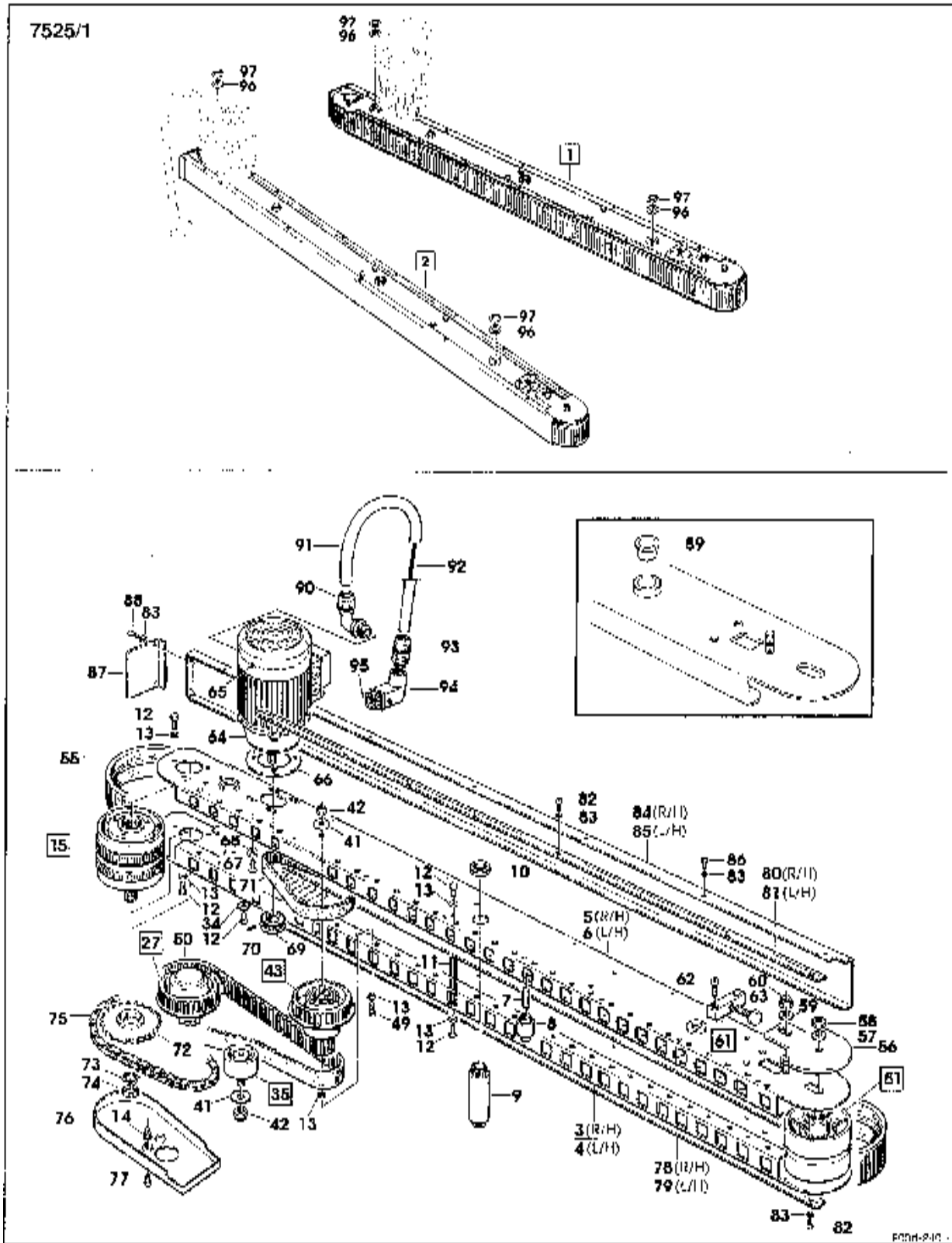


Figure 7-13. Side Belt and Drive Assemblies

## Parts List - Side Belt and Drive Assemblies

Item Number	Part Number	Description	Qty
1	78-8119-8513-0	DRIVE ASSEMBLY, Side, Right, w/o Motor	1
2	78-8119-8514-8	DRIVE ASSEMBLY, Side, Left, w/o Motor	1
3	78-8119-8515-5	GUIDE, Lower, Right	1
4	78-8119-8516-3	GUIDE, Lower, Left	1
5	78-8122-6723-1	GUIDE, Upper, Right w/English Label	1
6	78-8122-6724-9	GUIDE, Upper, Left w/English Label	1
7	78-8060-7995-6	PIN, Roller	112
8	78-8060-7996-4	ROLLER	112
9	78-8060-7728-1	SLEEVE, Threaded	2
10	78-8076-5104-3	NUT, Special, M22 x 1.5, H/8	4
11	78-8054-8910-7	SPACER, Hexagonal	16
12	78-8010-7169-3	SCREW, Metric, Hex Hd., M6 x 12	46
13	26-1000-0010-3	WASHER, Flat, M6	48
14	78-8054-8891-9	SCREW, Special	4
15	78-8060-8000-4	DRIVE PULLEY ASSEMBLY	2
27	78-8060-8003-8	DRIVE PULLEY ASSEMBLY, Keyed	2
34	78-8042-2919-9	WASHER, Triple, M6	6
35	78-8060-8006-1	JOCKEY PULLEY ASSEMBLY	2
41	26-1004-5507-5	WASHER, M8	4
42	78-8017-9313-0	NUT, Self-Locking, M8, Nick. Pl.	4
43	78-8060-8011-1	WRAP PULLEY ASSEMBLY	2
49	78-8032-0375-7	SCREW, Metric, Hex Hd., M6 x 16	2
50	78-8060-8013-7	BELT, Timing, 210 L 075	2
51	78-8060-8014-5	IDLER ROLLER ASSEMBLY	2
55	78-8054-8841-4	DRIVE BELT, 12AF	2
56	78-8091-0761-4	PLATE, Tensioning Belt	4
57	78-8017-9318-9	WASHER, Plain, Metric, 8mm	4
58	26-1003-6904-5	NUT, Hex, M8	4
59	78-8052-6566-3	WASHER, Friction	4
60	26-1003-6918-5	NUT, Plastic Insert, M10 Hex	4
61	78-8054-8903-2	BLOCK, Belt	4
62	78-8010-7210-5	SCREW, Soc. Hd., Hex Soc., M6 x 20	8
63	78-8054-8904-0	SCREW, Belt Adjustment	4

**Parts List - Side Belt and Drive Assemblies (Continued)**

<b>Item Number</b>	<b>Part Number</b>	<b>Description</b>	<b>Qty</b>
64	78-8094-6472-6	MOTOR, 200/220V, 50/60Hz	2
65	78-8076-5226-4	FAN, Motor, F.63	2
66	78-8094-6050-0	SPACER, Motor	2
67	26-1005-4757-4	SCREW, Flat Hd., Soc. Dr., M5 x 20	8
68	78-8060-8073-1	WASHER, Motor	8
69	78-8060-8015-2	PULLEY, 17 x L050	2
70	26-1003-8816-9	SCREW, Set, M5 x 6	2
71	78-8060-8016-0	BELT, Timing, 190 x L050	2
72	78-8060-8019-4	SPROCKET, 3/8-inch, 28 Teeth	2
73	78-8057-5834-5	TAB WASHER	2
74	78-8057-5835-2	WASHER, Centering	2
75	78-8060-8020-2	CHAIN, 3/8-inch Pitch, L=50	2
76	78-8076-5112-6	COVER, Chain	2
77	26-1003-7948-1	SCREW, Soc. Hd., Hex Soc., M5 x 10	4
78	78-8119-8519-7	PLATE, Roller Stop, Lower, Right	1
79	78-8119-8520-5	PLATE, Roller Stop, Lower, Left	1
80	78-8119-8521-3	PLATE, Roller Stop, Upper, Right	1
81	78-8119-8522-1	PLATE, Roller Stop, Upper, Left	1
82	78-8017-9257-9	SCREW, Phillip Head, M4 x 10	32
83	78-8005-5740-3	WASHER, Plain, Metric, 4mm Nick.	42
84	78-8119-8523-9	COVER, Drive, Right	1
85	78-8119-8524-7	COVER, Drive, Left	1
86	26-1002-5753-9	SCREW, Self Tapping	12
87	78-8114-4787-5	GUARD, Belt	2
88	26-1002-4955-1	SCREW, Self Tap, 8P x 13	4
89	78-8114-4878-2	BUSHING	8
90	78-8076-5113-4	UNION	2
91	78-8060-8181-2	SLEEVING, 0.710 Mt.	2
92	78-8060-8052-5	CABLE, 4 x 1.5 Mt. 3PH	1
93	78-8060-7626-7	CONNECTOR	2
94	78-8060-7874-3	PLUG HOUSING, Lateral	2
95	78-8060-7875-0	PLUG, Male	2
96	78-8060-7541-8	WASHER	4
97	78-8060-7533-5	LOCK RING	4

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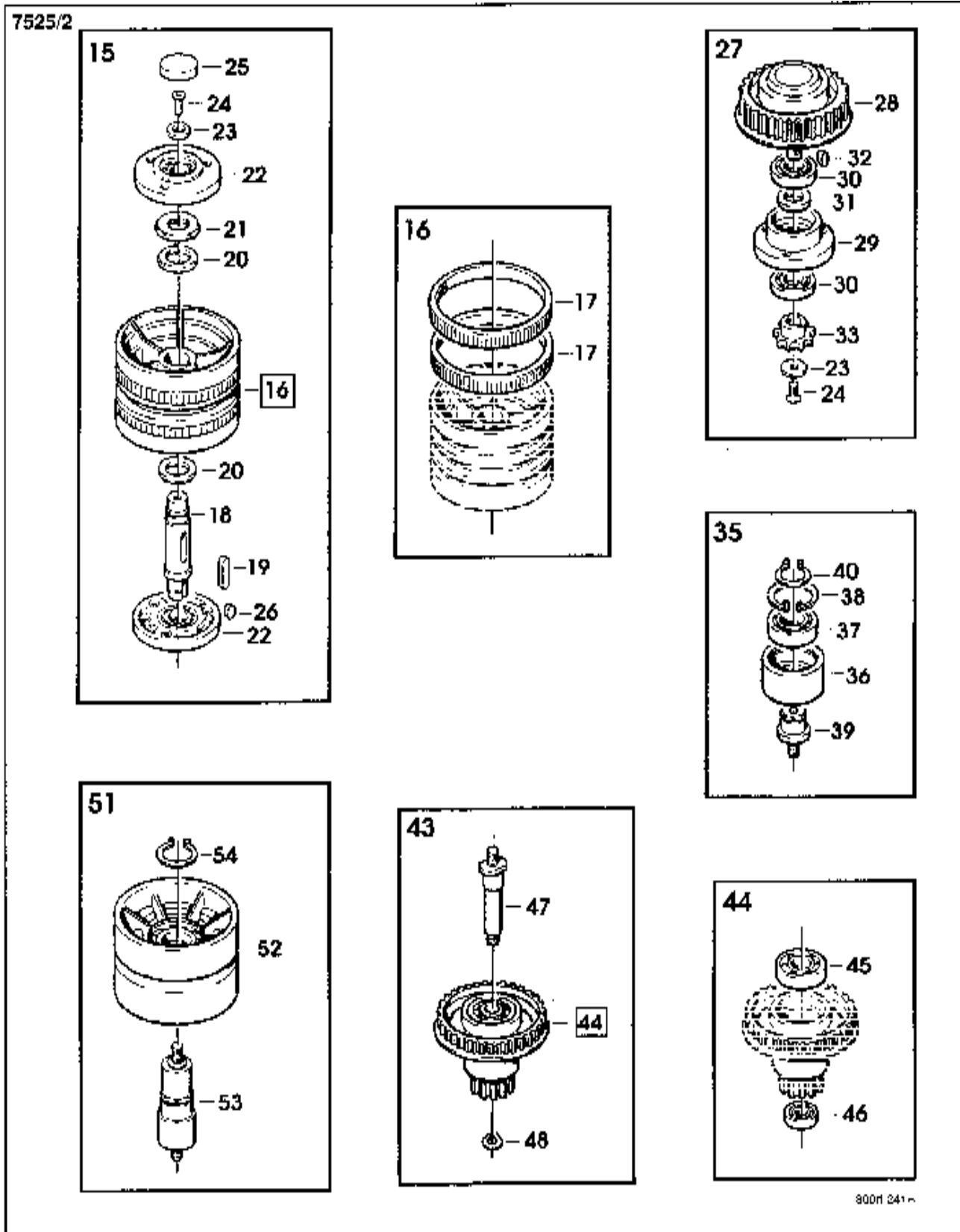


Figure 7-14. Side Belt Drive Pulleys (Detail)

## Parts List - Side Belt Drive Pulleys (Detail)

Item Number	Part Number	Description	Qty
15	78-8060-8000-4	DRIVE PULLEY ASSEMBLY	2
16	78-8076-5105-0	PULLEY ASSEMBLY, Drive	2
17	78-8052-6713-1	RING, Polyurethane	4
18	78-8054-8878-6	SHAFT, Pulley Keyed	2
19	78-8057-5739-6	KEY, M5 x 5 x 30mm	2
20	78-8054-8879-4	WASHER, 20, 5mm	4
21	78-8017-9096-1	NUT, Special, M18 x 1	2
22	78-8060-7648-1	BEARING, Flanged	4
23	78-8054-8877-8	WASHER, 5, 5/20 x 4	4
24	26-0001-5862-1	SCREW, Flat Hd. Soc., M5 x 12	4
25	78-8060-8037-6	CAP, Flange	2
26	78-8046-8135-7	KEY, 5 x 5, 12mm	2
27	78-8060-8003-8	DRIVE PULLEY ASSEMBLY, Keyed	2
28	78-8055-0825-2	PULLEY, Keyed	2
29	78-8054-8889-3	SUPPORT, Pulley, Keyed	2
30	26-1000-6036-2	BEARING, 6003, 2RS	4
31	78-8060-7547-5	SPACER	2
32	78-8028-8244-5	KEY, 4 x 4 x 10mm	2
33	78-8060-8005-3	SPROCKET, 3/8-inch, 11 Teeth	2
35	78-8060-8006-1	JOCKEY PULLEY ASSEMBLY	2
36	78-8060-8009-5	JOCKEY PULLEY	2
37	78-8060-8008-7	BEARING, 6004 2RS	2
38	78-8060-8010-3	SNAP RING, 42mm Shaft	2
39	78-8060-8007-9	PIN, Jockey Pulley	2
40	78-8017-9061-5	SNAP RING, 20mm Shaft	2
43	78-8060-8011-1	WRAP PULLEY ASSEMBLY	2
44	78-8076-5106-8	PULLEY ASSEMBLY, Idler	2
45	78-8023-2544-5	BEARING, 6203, 2RS	2
46	78-8023-2410-9	BEARING, 6000, 2RS	2
47	78-8054-8887-7	SHAFT, Pulley Wrap	2
48	78-8016-5855-6	E-RING, 10mm	2
51	78-8060-8014-5	IDLER ROLLER ASSEMBLY	2
52	78-8052-6710-7	ROLLER, Idler	2
53	78-8054-8913-1	SHAFT, Roller	2
54	12-7997-0272-0	E-RING, M-25	2

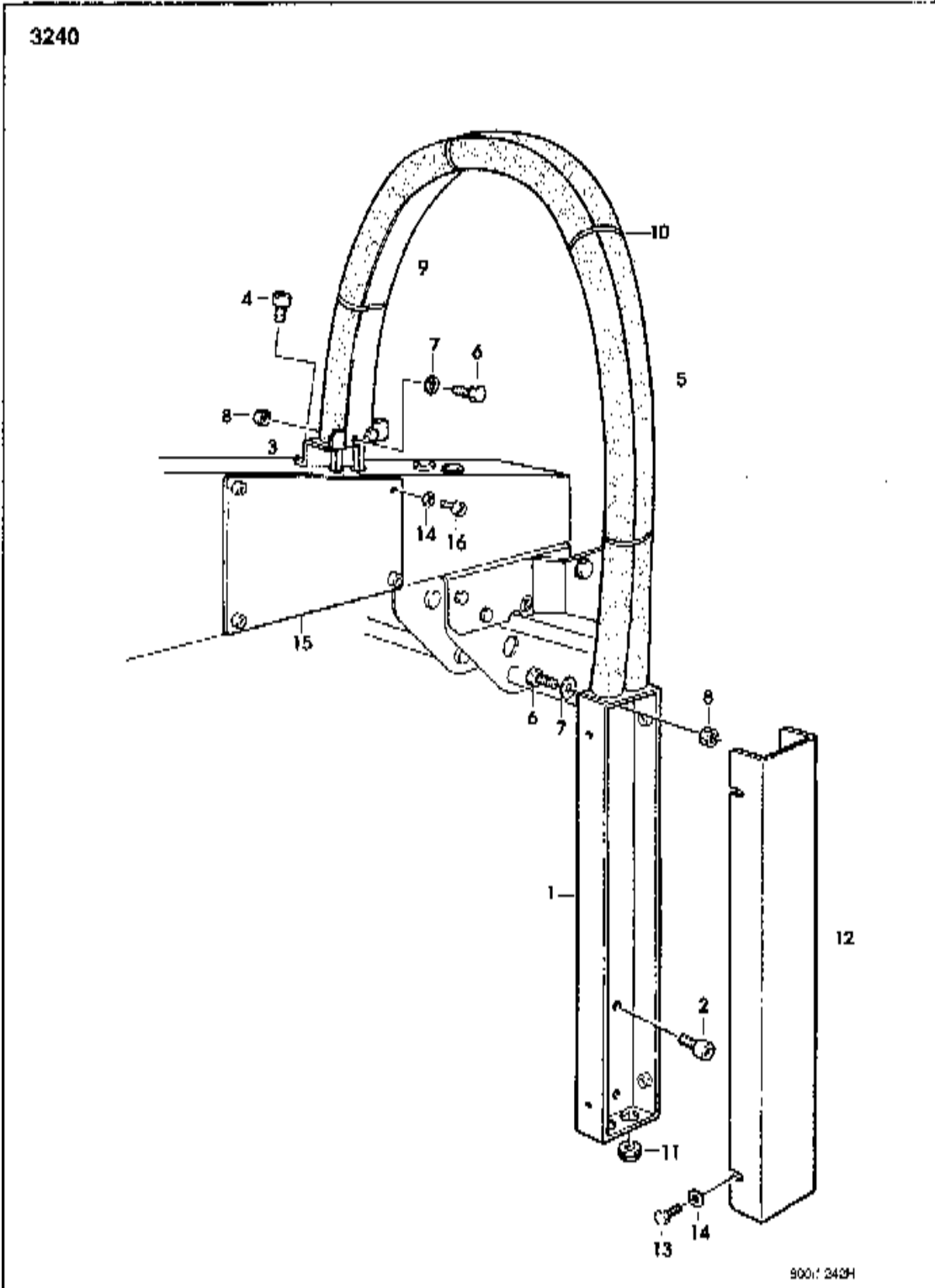


Figure 7-15. Upper Head Conduit Assembly



## Parts List - Upper Head Conduit Assembly

Item Number	Part Number	Description	Qty
1	78-8100-0897-5	HOUSING, Wire	1
2	26-1003-7963-0	SCREW, Soc. Hd., M8 x 16	2
3	78-8060-7757-0	PLATE, Strap	1
4	78-8060-7896-6	SCREW, Soc. Hd., Hex Hd., M6 x 14	2
5	78-8076-5116-7	SLEEVING/22, 1.11 M.	2
6	78-8010-7163-6	SCREW, Metric, Hex Hd, M5 x 10	4
7	78-8005-5741-1	WASHER, Flat, M5	6
8	78-8010-7417-6	NUT, Metric, Hex Stl., M5	4
9	78-8076-5117-5	STRAP, Wire	1
10	78-8060-7632-5	CLAMP	5
11	78-8060-7785-1	GROMMET	1
12	78-8076-5118-3	COVER, Channel	1
13	26-1003-5810-5	SCREW, Hex Hd., M4 x 8	4
14	78-8005-5740-3	WASHER, Plain, Metric, 4mm, Nick.	8
15	78-8076-5119-1	COVER	1
16	26-1003-7943-2	SCREW, Soc. Hd., M4 x 12	4

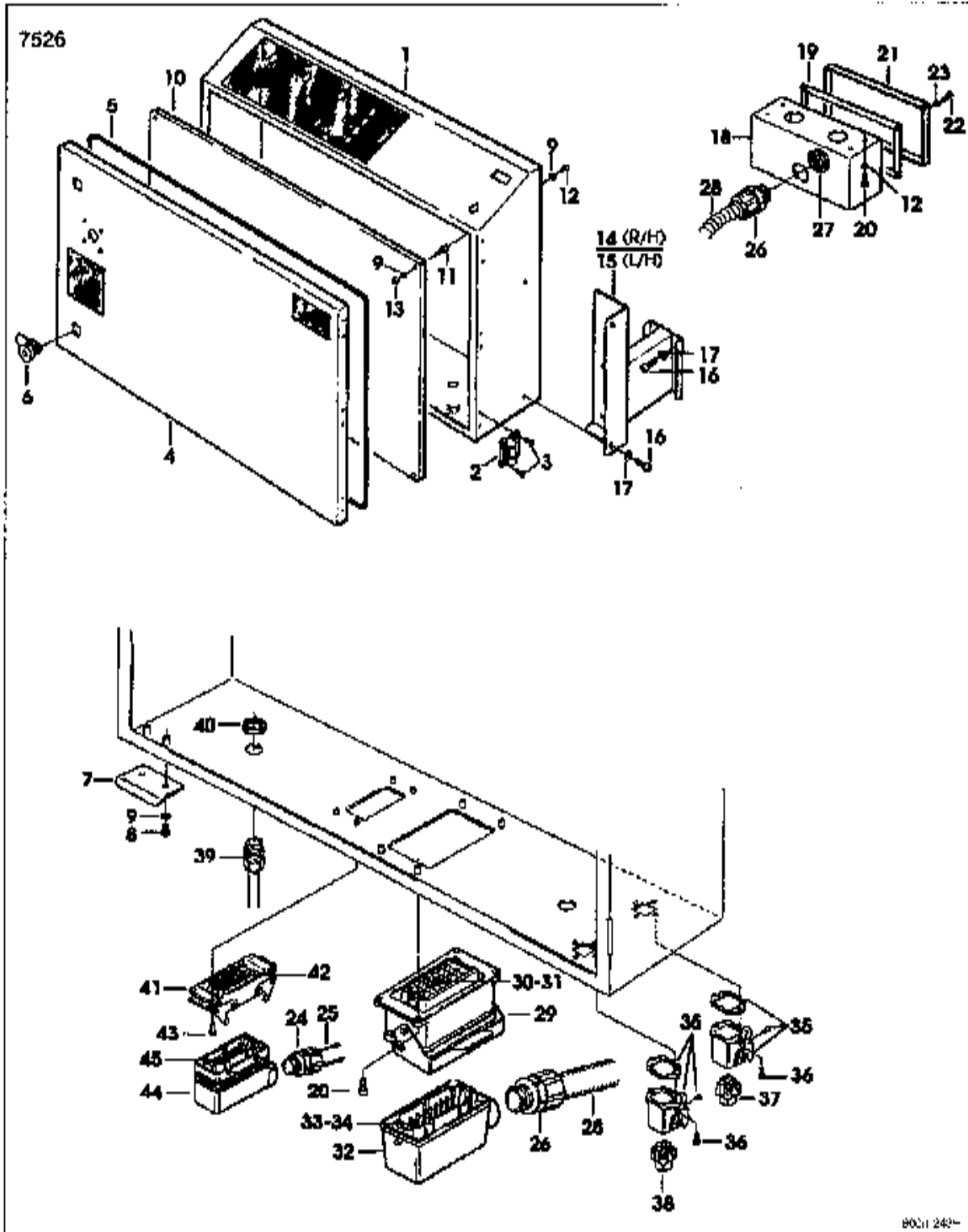


Figure 7-16. Electrical Control Panel

## Parts List - Electrical Control Panel

Item Number	Part Number	Description	Qty
1	78-8122-6719-9	BOX, Electric w/English Label	1
2	78-8119-8591-6	HINGE, Southco E6, 10, 501, 20	3
3	78-8100-1165-6	SCREW, Phillips Hd., M6 x 16	12
4	78-8122-6720-7	COVER, Electrical Box w/English Label	1
5	78-8119-8548-6	FOAM RUBBER	2,8
6	78-8119-8549-4	LOCK, "Southco"	2
7	78-8119-8592-4	PLATE, Support	1
8	78-8032-0375-7	SCREW, Metric, Hex Hd., M6 x 16	2
9	26-1000-0010-3	WASHER, Flat, M6	14
10	78-8119-8550-2	PANEL, Electric Box	1
11	78-8060-7814-9	SPACER, Electric Box	4
12	78-8010-7169-3	SCREW, Metric, Hex Hd., M6 x 12	4
13	26-1003-6916-9	NUT, Locking, Plastic Insert, M6	4
14	78-8119-8551-0	BRACKET, Electrical Board, Right	1
15	78-8119-8552-8	BRACKET, Electrical Board, Left	1
16	26-1003-7964-8	SCREW, Soc. Hd., Hex Soc. Dr., M8 x20	12
17	78-8017-9318-9	WASHER, Plain, Metric, 8mm	12
18	78-8119-8553-6	SHUNTING BOX	1
19	78-8119-8554-4	ADHESIVE RUBBER SEAL	0,8
20	26-1003-7957-2	SCREW, Soc. Hd., Hex Hd., M6 x 16	8
21	78-8119-8555-1	SHUNTING BOX COVER	1
22	78-8060-8087-1	SCREW, Metric, M5 x 10	4
23	78-8005-5741-1	WASHER, Flat, M5	4
24	78-8119-8556-9	CONNECTOR	1
25	78-8076-5116-7	SLEEVING, 22,1,11 M.	1
26	78-8119-8558-5	CONNECTOR, Straight For Sleeve	2
27	78-8119-8559-3	NUT, PG36 Connector	1
28	78-8119-8560-1	SLEEVE, 40 (MM. 1000)	1
29	78-8076-5121-7	CASE	1
30	78-8076-5214-0	TAP, CNE 24FP, Grey	1
31	78-8076-5215-7	TAP, 24FPN, Black	1
32	78-8076-5213-2	HOUSING, Plug	1
33	78-8076-5122-5	PLUG, CNE 24FS	1

**Parts List - Electrical Control Panel (Continued)**

<b>Item Number</b>	<b>Part Number</b>	<b>Description</b>	<b>Qty</b>
34	78-8076-5123-3	PLUG, CNE 24FSN	1
35	78-8060-7872-7	COVER, Plug Straight	2
36	78-8028-8208-0	SCREW, 6P x 9,5	4
37	78-8060-7873-5	PLUG, Female	1
38	78-8060-7592-1	SOCKET	1
39	78-8076-4715-7	CORD GRIP	1
40	78-8076-5211-6	SET NUT GMP13.5	1
41	78-8119-8689-8	HOUSING, Tap CN16-I	1
42	78-8119-8690-6	TAP, 16 Poles	1
43	78-8032-0379-9	SCREW, Soc. Hd., Hex Hd., M4 x 16	4
44	78-8119-8691-4	HOUSING, Plug	1
45	78-8119-8692-2	PLUG, 16 Poles	1

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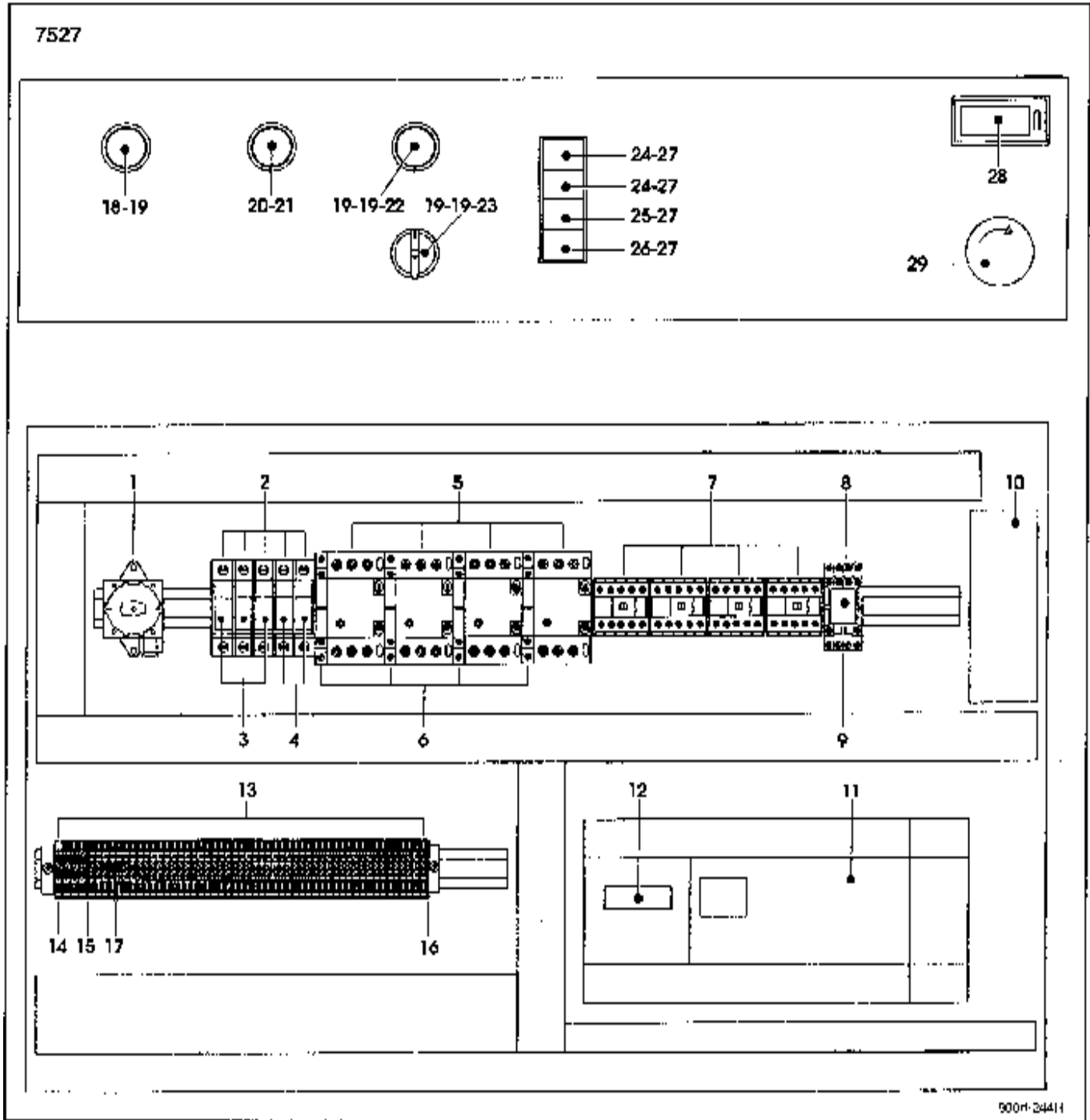


Figure 7-17. Electrical Control Panel (Detail)

## Parts List - Electrical Control Panel (Detail)

Item Number	Part Number	Description	Qty
1	78-8100-0898-3	SWITCH ASSEMBLY, LA2-16	1
2	78-8060-7622-6	FUSE CARRIER	5
3	78-8091-0471-0	FUSE, 10.3 x 38, 10 A	3
4	78-8060-7624-2	FUSE, 4 A, 10.3 x 38	2
5	78-8076-5223-1	SWITCH, Thermal, Allen-Bradley, KTA 3-25	4
6	78-8076-5224-9	CONTACT, Allen-Bradley, KT 3, 25, PA, 11	4
7	78-8076-5222-3	SWITCH, Sprecher + Schuh, CA4, 5C, 10, 24V, CC	4
8	78-8119-8593-2	RELAY, MG4, 24VAC	1
9	78-8076-5220-7	BASE AMG4	1
10	26-1014-6252-6	DC POWER SUPPLY, OMRON	1
11	26-1014-6253-4	Allen-Bradley, PLC Type SCL500, 1747, L40F	1
12	78-8119-8594-0	UV-PROM, 1747, M3	1
13	78-8091-0412-4	TERMINAL, VU 4-2.5	53
14	78-8091-0414-0	TERMINAL, VUPE 4-4	1
15	78-8091-0413-2	PLATE, VT 4, 2.5/4	1
16	78-8091-0411-6	PLATE, VA 4, 2.5/4	1
17	78-8119-8595-7	BRIDGE	0,2
18	78-8119-8596-5	PUSH BUTTON, Sprecher + Schuh, Green, 800EP-F3	1
19	78-8076-5230-6	CONTACT, Sprecher + Schuh, DE3-10	5
20	78-8119-8597-3	PUSH BUTTON, Sprecher + Schuh, Black, 800EP-F2	1
21	78-8076-5195-1	CONTACT, Sprecher + Schuh, DE 3-01	1
22	78-8119-8598-1	PUSH BUTTON, Sprecher + Schuh, Blue, 800EP-F6	1
23	78-8119-8599-9	SELECTOR, Dsk 3LD	1
24	78-8119-8600-5	LIGHT, Warning, Red, 800EQ-PM4D0	2
25	78-8119-8601-3	LIGHT, Warning, Green, 800EQ, PM3D0	1
26	78-8119-8602-1	LIGHT, Warning, Transparent, 800EQ, PM7D0	1
27	78-8119-8603-9	LIGHT, BA, 9S, 36 VAC	4
28	78-8119-8604-7	COUNTER, H7GP, CD	1
29	78-8094-6385-0	E-STOP, 800EP, MTS643LX01	1

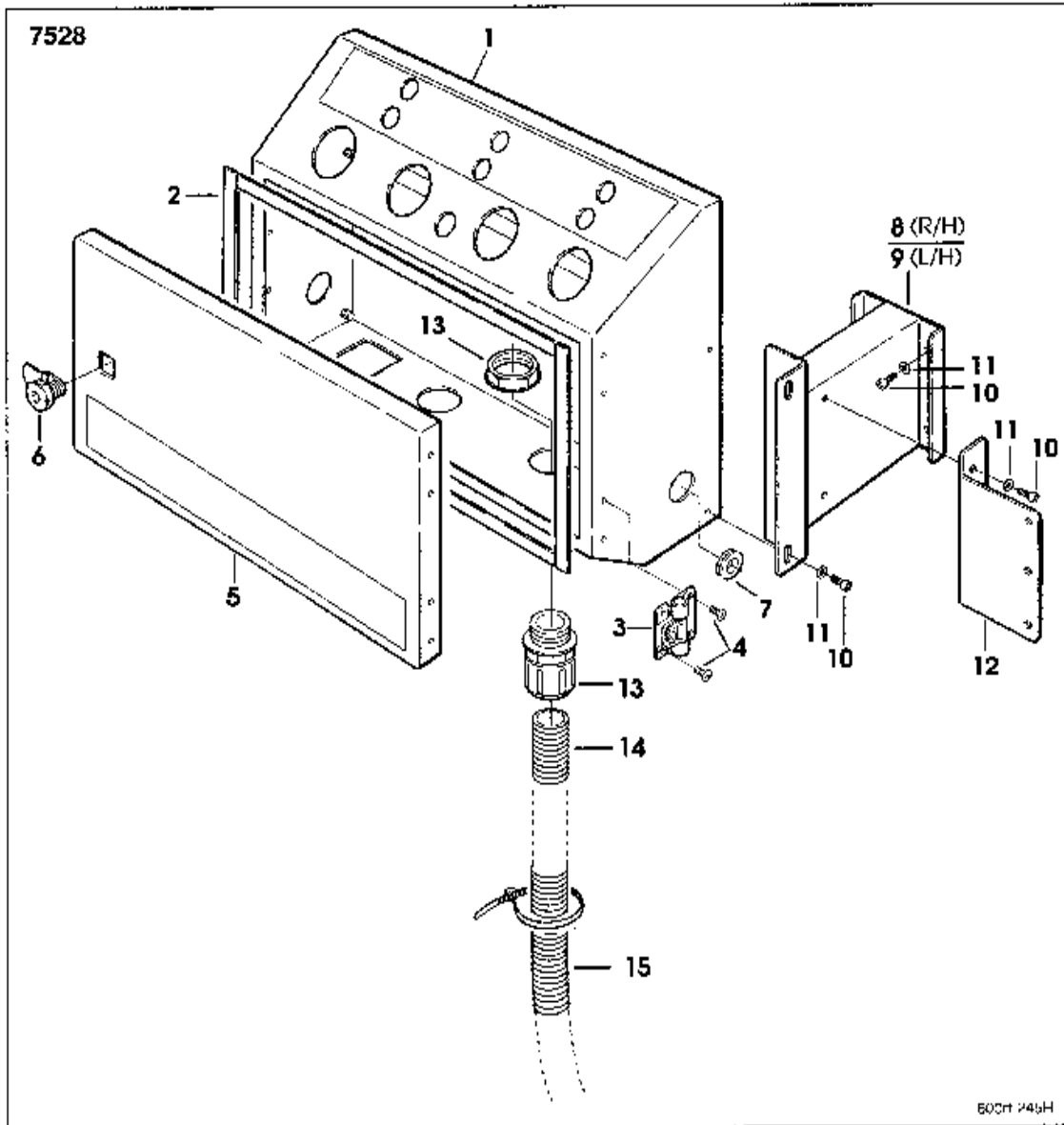


Figure 7-18. Pneumatic Control Panel



## Parts List - Pneumatic Control Panel

Item Number	Part Number	Description	Qty
1	78-8122-6721-5	BOX, Pneumatics w/English Label	1
2	78-8119-8554-4	ADHESIVE, Rubber Seal	1,35
3	78-8119-8591-6	HINGE, Southco, E6, 10, 501, 20	2
4	78-8100-1165-6	SCREW, Phillips Hd., M6 X 16	8
5	78-8122-6722-3	BOX COVER, Pneumatics w/English Label.	1
6	78-8119-8549-4	LOCK, "Southco"	1
7	78-8119-8672-4	GROMMET, EZ-DG21	2
8	78-8119-8563-5	BRACKET, Pneumatic Board, Right	1
9	78-8119-8564-3	BRACKET, Pneumatic Board, Left	1
10	26-1003-7964-8	SCREW, Soc. Hd., Hex Soc. Dr., M8 x 20	14
11	78-8017-9318-9	WASHER, Plain, Metric, 8mm	14
12	78-8119-8565-0	BRACKET, Support Guards	1
13	78-8076-5124-1	UNION, 1.1/4-inch Gas	2
14	78-8119-8566-8	SLEEVE/35 (MM. 3000)	1
15	78-8119-8567-6	CLAMP MM. 4.8 x 292	4

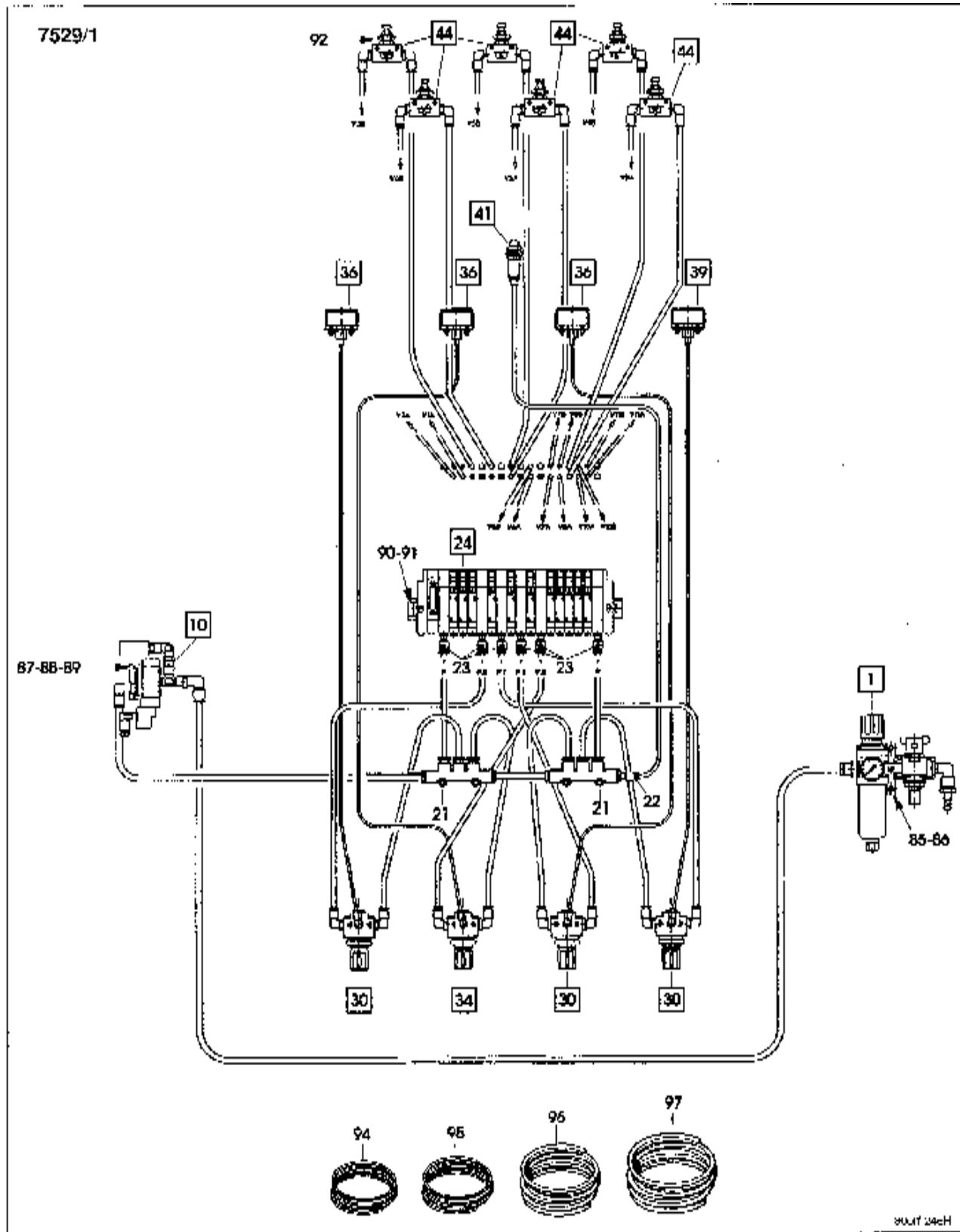


Figure 7-19. Pneumatic Components, #1

## Parts List - Pneumatic Components, #1

Item Number	Part Number	Description	Qty
1	78-8119-8605-4	FILTER/REGULATOR ASSEMBLY	1
10	78-8119-8612-0	SOLENOID VALVE ASSEMBLY	1
21	78-8119-8618-7	UNION, Multiple, 33041008	2
22	78-8119-8619-5	REDUCER, 31660610	1
23	78-8119-8620-3	REDUCER, 31660810	6
24	78-8119-8621-1	SOLENOID VALVE ASSEMBLY, VQ2000	1
30	78-8119-8626-0	PRESSURE REGULATOR ASSEMBLY	3
34	78-8119-8629-4	PRESSURE REGULATOR ASSEMBLY	1
36	78-8119-8631-0	GAGE ASSEMBLY, 0-12 Bar	3
39	78-8119-8634-4	GAGE ASSEMBLY, 0-4 Bar	1
41	78-8119-8636-9	INDICATOR ASSEMBLY	1
44	78-8119-8637-7	FLOW REGULATOR ASSEMBLY	6
85	26-1003-7951-5	SCREW, Soc. Hd., Hex Soc., M5 x 20	2
86	78-8028-8214-8	WASHER	2
87	78-8017-9257-9	SCREW, Phillips Head, M4 x 10	2
88	78-8005-5740-3	WASHER, Plain, Metric, 4mm, Nick.	2
89	78-8010-7416-8	NUT, Metric, Hex, Steel, M4	2
90	78-8060-8087-1	SCREW, Metric, M5 x 10	2
91	78-8005-5741-1	WASHER, Flat, M5	2
92	78-8076-5165-4	SPACER	6
94	78-8119-8666-6	TUBE, Air, TU0425B, 5MT	3
95	78-8119-8667-4	TUBE, Air, TU0604B, 5MT	16
96	78-8119-8668-2	TUBE, Air, TU0805B, 5MT	16
97	78-8119-8669-0	TUBE, Air, TU1065B, 5MT	1

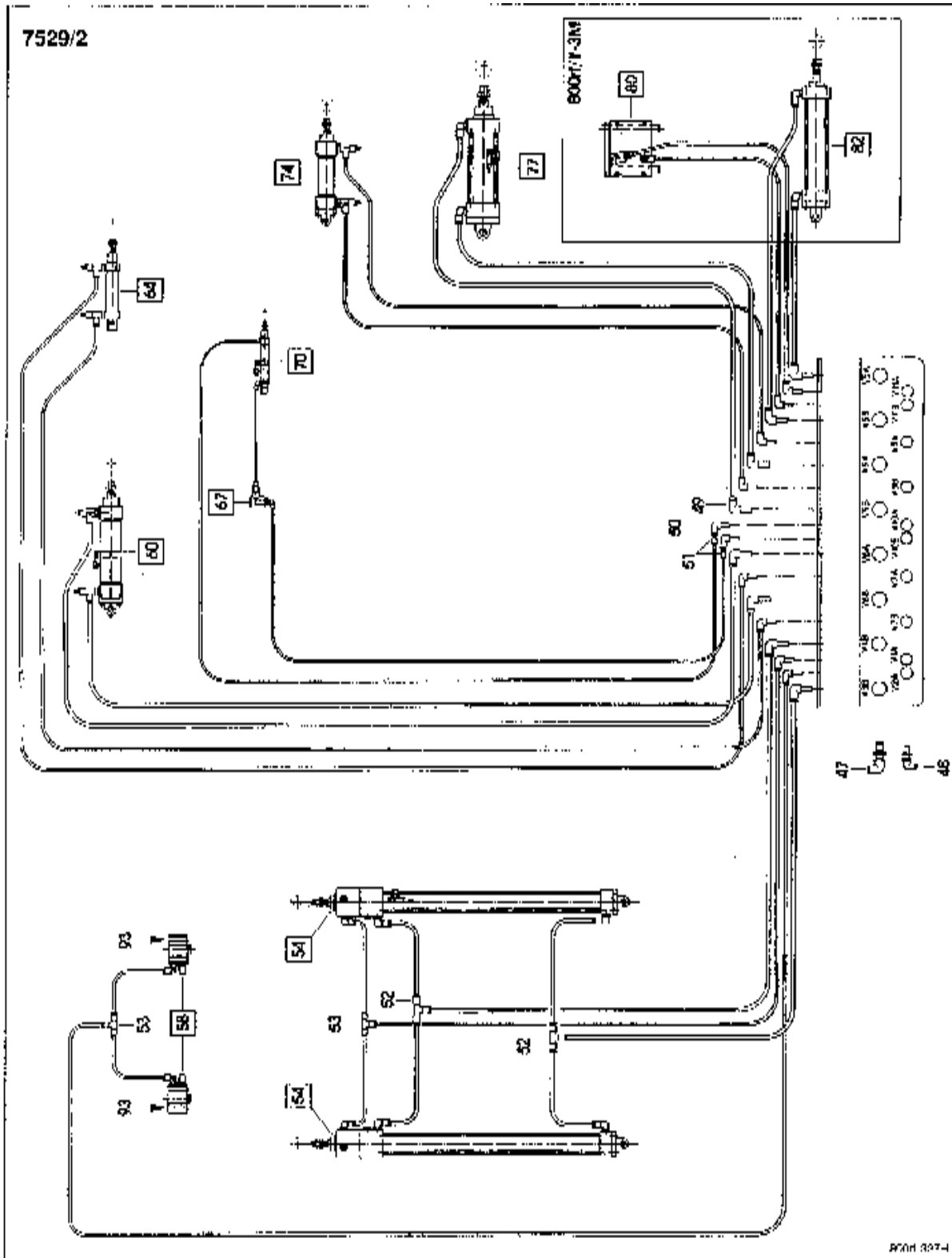


Figure 7-20. Pneumatic Components, #2

## Parts List - Pneumatic Components, #2

Item Number	Part Number	Description	Qty
47	78-8091-0350-6	UNION, Special	8
48	78-8076-4666-2	ELBOW, Bulkhead	10
49	78-8119-8639-3	UNION, Elbow, 31820800	8
50	78-8119-8640-1	UNION, Elbow, 31820600	10
51	78-8057-5735-4	FITTING, Reducer	2
52	78-8094-6277-9	UNION, TE, 31040800	2
53	78-8057-6170-3	TEE, 6mm Tubing	2
54	78-8119-8641-9	COLUMN, Air Cylinder Assembly	2
58	78-8119-8643-5	COMPRESSION ROLLER, Air Cylinder Assembly	2
60	78-8119-8645-0	FLAP FOLD, Air Cylinder Assembly	1
64	78-8119-8649-2R	FLAP FOLD, Air Cylinder Assembly	1
67	78-8119-8652-6	EXHAUST VALVE ASSEMBLY	1
70	78-8119-8653-4	PADDLE, Air Cylinder Assembly	1
74	78-8119-8656-7	BOX STOP, Air Cylinder Assembly	1
77	78-8119-8659-1	SIDE DRIVE, Air Cylinder Assembly	1
80	78-8119-8662-5	GATE, Air Cylinder Assembly	1
82	78-8119-8663-3	CENTERING, Air Cylinder Assembly	1
93	78-8119-8665-8	SCREW, Soc. Hd., Hex Hd., M6 x 50	8

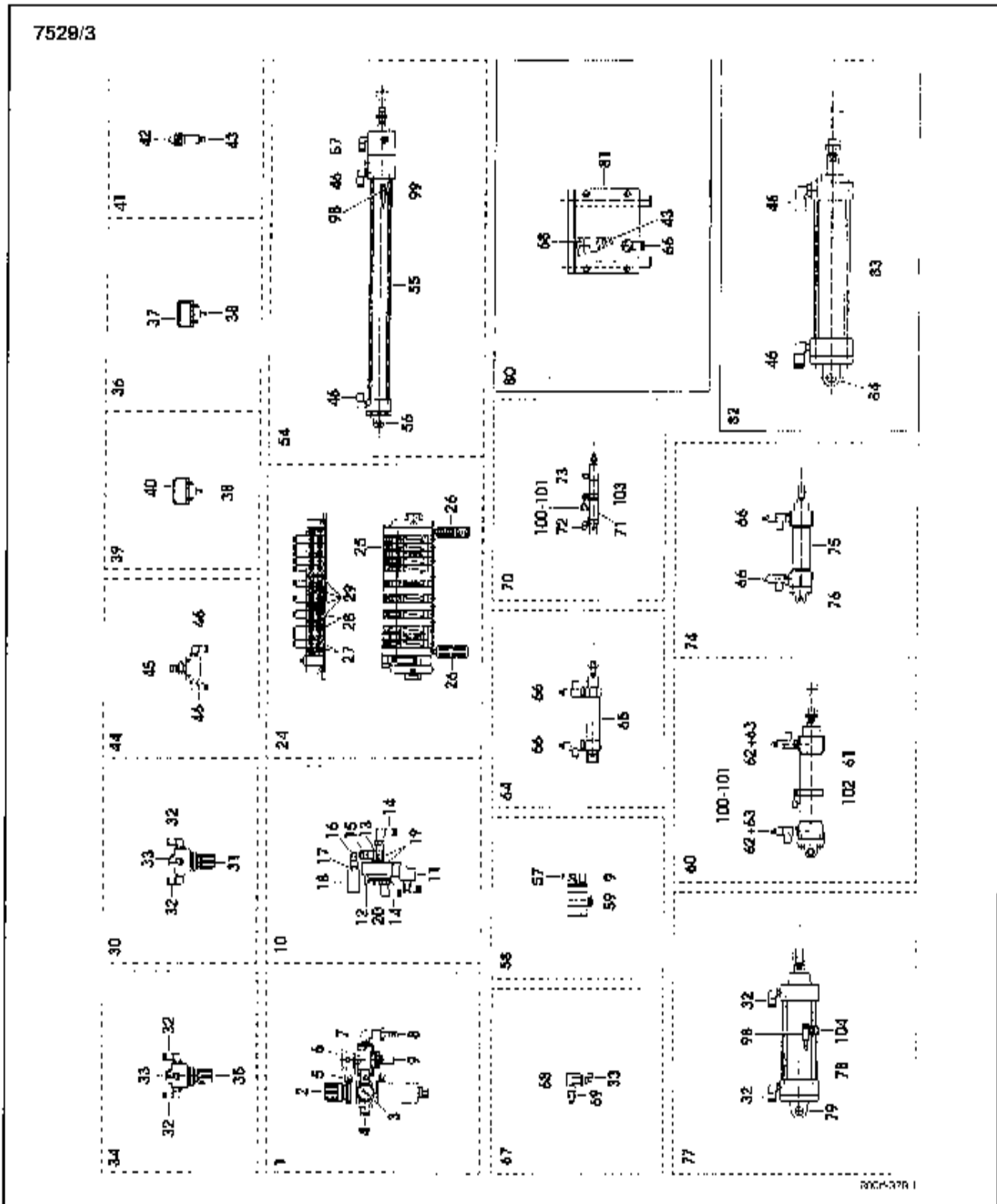


Figure 7-21. Pneumatic Components, #3

## Parts List - Pneumatic Components, #3

Item Number	Part Number	Description	Qty
1	78-8119-8605-4	FILTER/REGULATOR ASSEMBLY	1
2	78-8119-8606-2	REGULATOR, Pressure, SMC, EAW3000	1
3	78-8054-8838-0	GAUGE, Air	1
4	78-8119-8607-0	UNION, 31011017	1
5	78-8119-8608-8	COUPLING, Y30T	1
6	78-8119-8609-6	VALVE, SMC, EVHS, 3500, F03, R, X116	1
7	78-8119-8610-4	UNION, Elbow, RA022, 3/8-inch, 3/8-inch	1
8	78-8119-8611-2	HOSE CONNECTOR, RA030, 3/8-inch	1
9	78-8076-4886-6	MUFFLER, 1/4-inch	3
10	78-8119-8612-0	SOLENOID VALVE ASSEMBLY	1
11	78-8119-8613-8	SOLENOID VALVE, SMC, SY7120, 5, Y0, 02F	1
12	78-8119-8614-6	BRACKET, SMC, SX7000, 16, 1A	1
13	78-8060-7753-9	ELBOW, T, MFF, RA, 025, 1/4-inch, 1/4-inch	1
14	78-8119-8615-3	UNION, Elbow, 31991013	2
15	78-8114-5012-2	REDUCTION, Conic	1
16	78-8060-7900-6	UNION	1
17	78-8094-6274-6	REDUCTION, RA 014, 1/4-inch, 1/8-inch	1
18	78-8094-6275-3	PRESSURE SWITCH, SMC, IS1000, F01 x 201	1
19	78-8119-8616-1	MUFFLER, SP 1/4-inch	2
20	78-8119-8617-9	CAP, 1/4-inch	1
24	78-8119-8621-1	SOLENOID VALVE ASSEMBLY, VQ2000	1
25	78-8119-8622-9	SOLENOID VALVE SET, SMC, SY5140	1
26	78-8119-8623-7	MUFFLER	2
27	78-8060-7861-0	END CAP	2
28	78-8119-8624-5	CAP, SMC, KQP-08	2
29	78-8119-8625-2	CAP, SMC, 31261000	4
30	78-8119-8626-0	PRESSURE REGULATOR ASSEMBLY	3
31	78-8119-8627-8	REGULATOR, Pressure SMC, EAR2500-F03	3
32	78-8119-8628-6	UNION, Elbow, 31990817	10
33	26-1005-5909-0	ELBOW	5
34	78-8119-8629-4	PRESSURE REGULATOR ASSEMBLY	1
35	78-8119-8630-2	REGULATOR, Pressure, SMC, EAR2500-0.2-2	1
36	78-8119-8631-0	GAUGE ASSEMBLY, 0-12 Bar	3

Parts List - Pneumatic Components, #3 (Continued)

Item Number	Part Number	Description	Qty
37	78-8119-8632-8	GAUGE, 50, 0-12 Bar	3
38	78-8119-8633-6	UNION, 31140413	4
39	78-8119-8634-4	GAUGE ASSEMBLY, 0-4 Bar	1
40	78-8119-8635-1	GAUGE, 50, 0-4 Bar	1
41	78-8119-8636-9	INDICATOR ASSEMBLY	1
42	78-8076-4665-4	INDICATOR, Visual	1
43	26-1005-6910-7	UNION, Straight	2
44	78-8119-8637-7	FLOW REGULATOR ASSEMBLY	6
45	78-8119-8638-5	REGULATOR, Flow, RFU-446-1/4-inch	6
46	78-8091-0315-9	ELBOW, 3199.08.13	18
54	78-8119-8641-9	COLUMN, Air Cylinder Assembly	2
55	78-8119-76428642-7	CYLINDER, Air, SMC, CNA LN40-450	2
56	78-8114-5009-3	HINGE, SMC, CD65D40	2
57	78-8055-0756-9	UNION, Rotating	4
58	78-8119-8643-5	COMPRESSOR, Air Cylinder Assembly	2
59	78-8119-8644-3	CYLINDER, Air, DN-50C, ECQ, 2B	2
60	78-8119-8645-0	FLAP FOLD, Air Cylinder Assembly	1
61	78-8119-8646-8	CYLINDER, SMC, Air, CD65, D40	1
62	78-8119-8647-6	UNION, 6610, 8, 1/4-inch	2
63	78-8119-8648-4	REGULATOR, SCU 606, 1/4-inch	2
64	78-8119-8649-2R	FLAP FOLD, Air Cylinder Assembly	1
65	78-8119-8650-0	CYLINDER, Air, SMC, CD85N25-60B	1
66	78-8119-8651-8	REGULATOR, Flow	5
67	78-8119-8652-6	EXHAUST VALVE ASSEMBLY	1
68	78-8013-9935-9	VALVE, Quick Exhaust	2
69	78-8076-4672-0	UNION, Straight, Female	1
70	78-8119-8653-4	PADDLE, Air Cylinder Assembly	1
71	78-8119-8654-2	CYLINDER, Air SMC, CD85N16, 50B+BJ2-016+DC73L	1
72	78-8057-5732-1	FITTING, Elbow	1
73	78-8119-8655-9	UNION, 31010419	1
74	78-8119-8656-7	BOX STOP, Air Cylinder Assembly	1
75	78-8119-8657-5	CYLINDER, Air, SMC, C65D32-60C	1
76	78-8119-8658-3	HINGE, Cylinder, C65-D32	1



## Parts List - Pneumatic Components, #3 (Continued)

Item Number	Part Number	Description	Qty
77	78-8119-8659-1	SIDE DRIVE, Air Cylinder Assembly	1
78	78-8119-8660-9	CYLINDER, Air, SMC, C95SD, B63, 100	1
79	78-8119-8661-7	HINGE, Female, D5063	1
80	78-8119-8662-5	GATE, Air Cylinder Assembly	1
81	78-8094-6294-4	CYLINDER, MGQM/40 Stroke 50	1
82	78-8119-8663-3	CENTERING, Air Cylinder Assembly	1
83	78-8119-8664-1	CYLINDER, Air, SMC, C92-40-170	1
84	78-8076-4908-8	HINGE	1
98	78-8094-6346-2	SWITCH, Limit 24V CC 5-5-D A53L	2
99	78-8094-6345-4	CLAMP KIT	1
100	78-8119-8693-0	SENSOR, D-C73C-75	2
101	78-8119-8694-8	CABLE, DLC 50	1
102	78-8119-8695-5	CLAMP, BM2-040	1
103	78-8119-8696-3	CLAMP, BJ2-016	1
104	78-8119-8697-1	MOUNTING, BT-105	1

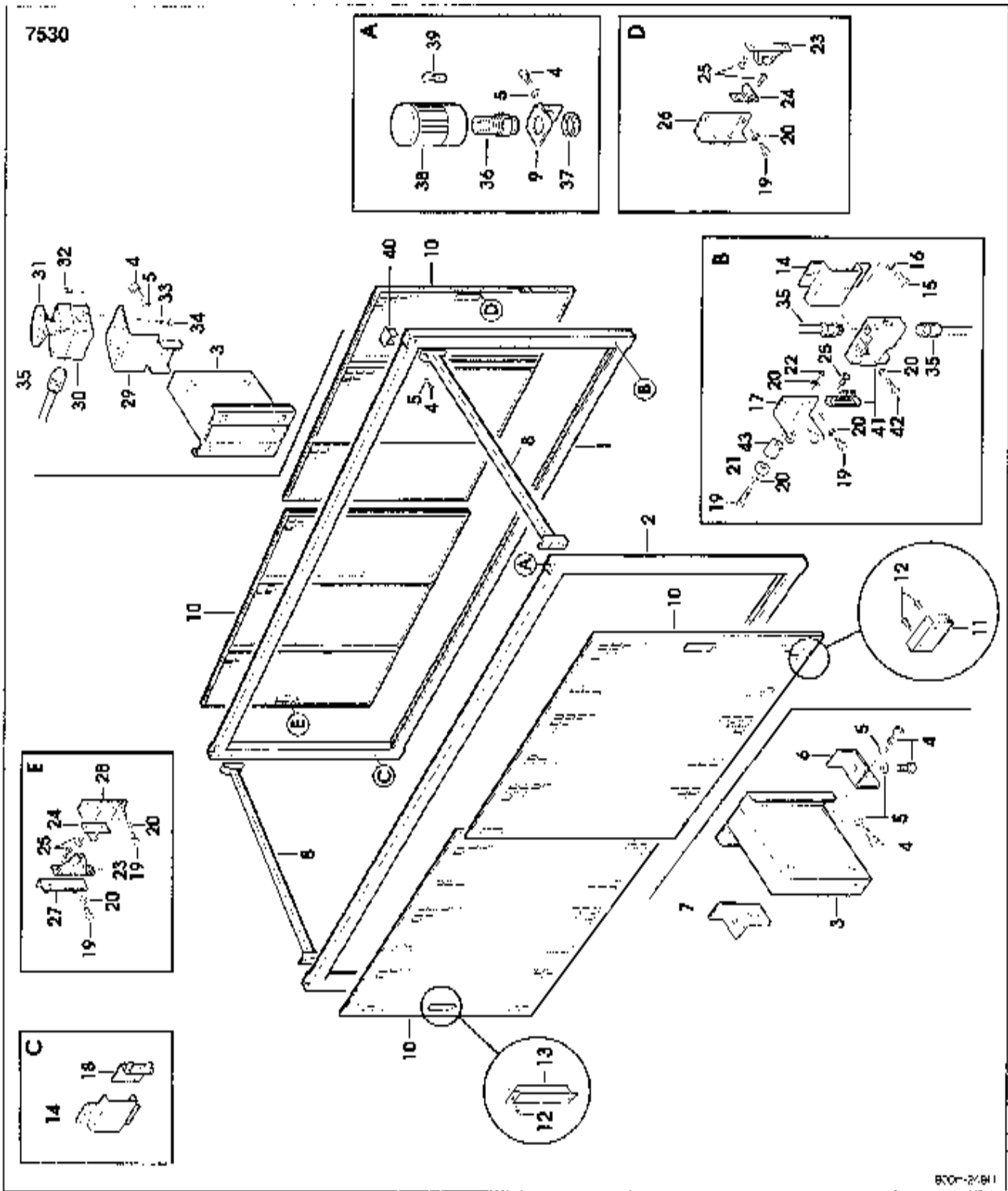


Figure 7-22. Sliding Door Assembly

## Parts List - Sliding Door Assembly

Item Number	Part Number	Description	Qty
1	78-8119-8568-4	FRAME, Right, Guards	1
2	78-8119-8670-8	FRAME, Left, Guards	1
3	78-8119-8569-2	BRACKET, Support Guards	2
4	26-1003-7964-8	SCREW, Soc. Hd., Hex Soc. Dr., M8x 20	32
5	78-8017-9318-9	WASHER, Plain, Metric, 8mm	32
6	78-8119-8570-0	SUPPORT, Right, Guards	2
7	78-8119-8571-8	SUPPORT, Left, Guards	2
8	78-8119-8572-6	CROSSMEMBER ASSEMBLY, Guards	2
9	78-8119-8573-4	BRACKET, Winking Light	1
10	78-8119-8574-2	GUARD	4
11	78-8119-8575-9	SLIDE, Guard	16
12	78-8060-8087-1	SCREW, Metric, M5 x 10	40
13	78-8119-8671-6	HANDLE	4
14	78-8119-8576-7	BRACKET, Switch	4
15	26-1003-7957-2	SCREW, Soc. Hd., Hex Hd., M6 x 16	16
16	26-1000-0010-3	WASHER, Flat, M6	16
17	78-8119-8577-5	LONG BRACKET, Actuator	2
18	78-8119-8578-3	SHORT BRACKET, Actuator	2
19	26-1002-5824-8	SCREW, Hex Hd., M5 x 35	22
20	78-8028-8214-8	WASHER, Flat, M5	30
21	78-8119-8579-1	STOP	2
22	78-8010-7417-6	NUT, Metric, Hex Stl., M5	2
23	78-8076-4932-8	LOCK, Wing	4
24	78-8076-4931-0	DRAWBAR, Lock	4
25	26-1005-5316-8	SCREW, Flat Hd., Hex Dr., M5 x 16	24
26	78-8119-8580-9	FRONT BRACKET	2
27	78-8119-8581-7	REAR BRACKET	2
28	78-8119-8582-5	REAR BRACKET	2
29	78-8119-8583-3	SUPPORT, On/Off Button	1
30	78-8076-5194-4	BOX, E-Stop, Yellow	1
31	78-8094-6385-0	E-STOP, 800EP-MTS643LX01	1
32	83-0002-7336-3	SCREW, Hex Hd., M4 x 14 Zinc. Pl.	2
33	78-8005-5740-3	WASHER, Plain, Metric, 4mm Nick.	2

**Parts List - Sliding Door Assembly (Continued)**

<b>Item Number</b>	<b>Part Number</b>	<b>Description</b>	<b>Qty</b>
34 .....	78-8010-7416-8 .....	NUT, Metric, Hex, Steel, M4 .....	2
35 .....	78-8076-4532-6 .....	CORD GRIP .....	9
36 .....	78-8119-8585-8 .....	BUSHING, Flanged, Lamp .....	1
37 .....	78-8076-5104-3 .....	SPECIAL NUT, M22 x 1, 5/8 .....	1
38 .....	78-8119-8586-6 .....	LAMP ASSEMBLY .....	1
39 .....	78-8119-8587-4 .....	LAMP, BA15D, 5W, 30V .....	1
40 .....	78-8119-8584-1 .....	COVER, Upper Guards .....	3
41 .....	78-8076-4929-4 .....	SECURITY SWITCH, Berhstein, AZ15ZVR .....	4
42 .....	78-8010-7165-1 .....	SCREW, Flat Hd., Soc., M5 x 25 .....	8
43 .....	78-8119-8725-0 .....	SPACER, Bumper .....	2

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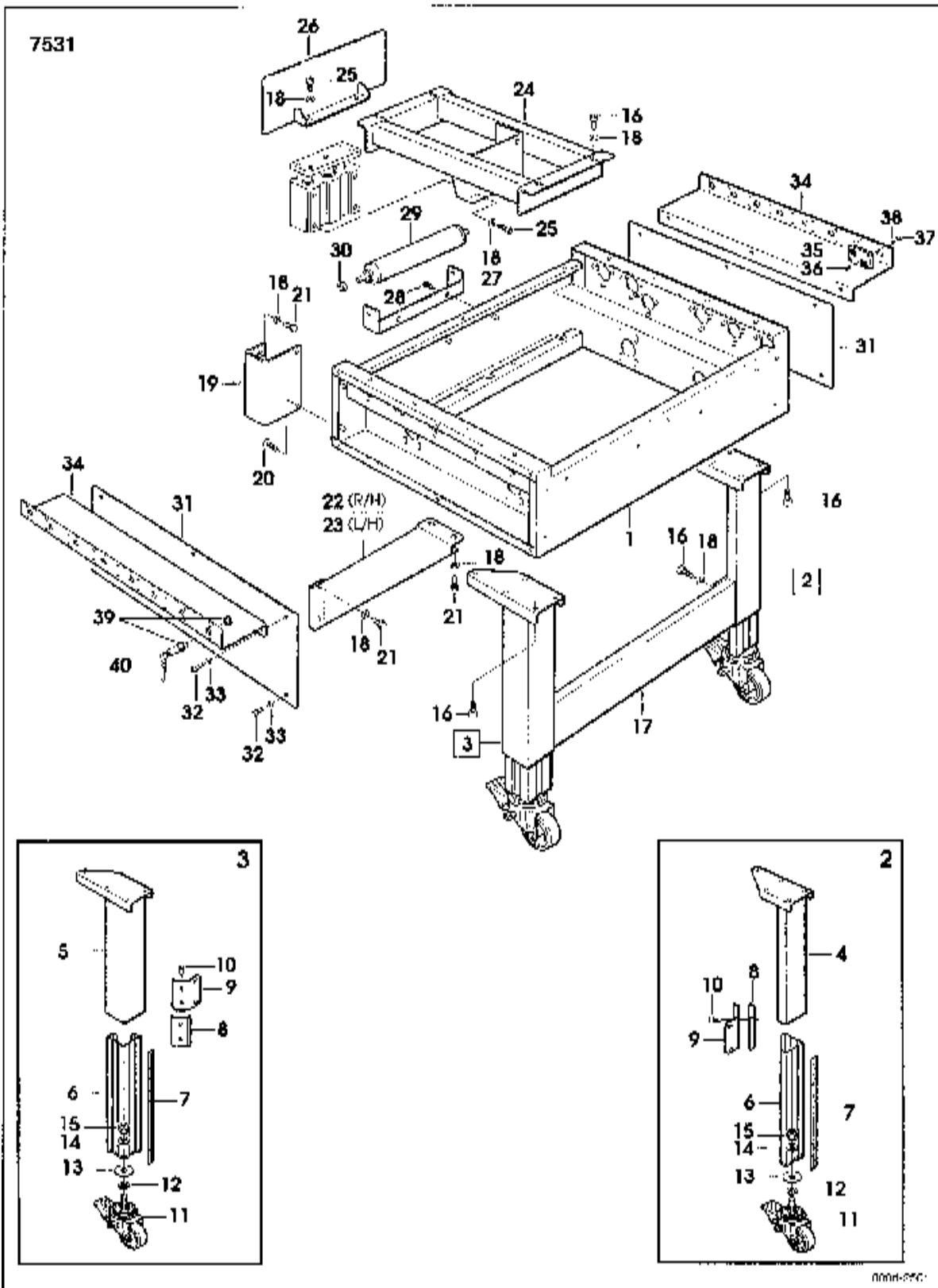


Figure 7-23. Infeed Conveyor Frame

## Parts List - Infeed Conveyor Frame

Item Number	Part Number	Description	Qty
1	78-8114-4812-1	CONVEYER FRAME ASSEMBLY	1
2	78-8076-5338-7	LEG ASSEMBLY W/Caster, Right	1
3	78-8076-5337-9	LEG ASSEMBLY W/Caster, Left	1
4	78-8076-5040-9	LEG, Right	1
5	78-8076-5041-7	LEG, Left	1
6	78-8052-6678-6	LEG, Inner	2
7	78-8052-6080-2	LABEL, Height	2
8	78-8052-6677-8	CLAMP, Inner	2
9	78-8060-7697-8	BRACKET, Special	2
10	26-1003-7963-0	SCREW, Soc. Hd., M8 x 16	4
11	78-8060-8061-6	CASTER	2
12	78-8060-8124-2	SPACER, Caster	2
13	78-8060-7699-4	WASHER, /12-45, 5 x 4	2
14	78-8017-9059-9	WASHER, Flat for M12 Screw	2
15	78-8060-7532-7	NUT, M12, Self-Locking	2
16	26-1003-7964-8	SCREW, Soc. Hd., Hex Soc. Dr., M8 x 20	18
17	78-8114-4813-9	CROSS BAR, Leg	1
18	78-8017-9318-9	WASHER, Plain, Metric, 8mm	28
19	78-8114-4814-7	BRACKET	2
20	78-8054-8567-3	SCREW, Soc. Hd., Special	4
21	26-1003-5842-8	SCREW, Hex Hd., M8 x 20	12
22	78-8114-4815-4	REINFORCEMENT, Right	1
23	78-8114-4816-2	REINFORCEMENT, Left	1
24	78-8114-4817-0	SUPPORT, Gate	1
25	78-8114-4818-8	SCREW, Soc. Hd., Hex Hd., M8 x 14	8
26	78-8114-4819-6	GATE	1
27	78-8119-8738-3	SUPPORT, Roller	1
28	26-1003-5829-5	SCREW, Hex Hd., M6 x 12	2
29	78-8076-5349-4	ROLLER, /32 x 198	1
30	78-8052-6668-7	SNAP, Roller	1
31	78-8114-4822-0	COVER, Right/Left	2
32	78-8032-0382-3	SCREW, Soc. Hex Hd., M5 x 16, Zinc. Pl.	12
33	78-8005-5741-1	WASHER, Flat, M5	12

**Parts List - Infeed Conveyor Frame (Continued)**

<b>Item Number</b>	<b>Part Number</b>	<b>Description</b>	<b>Qty</b>
34 .....	78-8114-4823-8 .....	SUPPORT, Photocell/Reflector .....	2
35 .....	78-8076-5057-3 .....	REFLECTOR, E39-R1 .....	3
36 .....	78-8010-7157-8 .....	SCREW, Hex Hd., M4 x 10 .....	6
37 .....	78-8010-7416-8 .....	NUT, Metric, Hex, Steel, M4 .....	6
38 .....	78-8005-5740-3 .....	WASHER, Plain, Metric, 4mm, Nick. ....	6
39 .....	78-8114-4824-6 .....	PHOTOCELL, E3F2, R2B4, P1, E .....	3
40 .....	78-8114-4825-3 .....	CONNECTOR, CS, A2, 02, S, 05 .....	3



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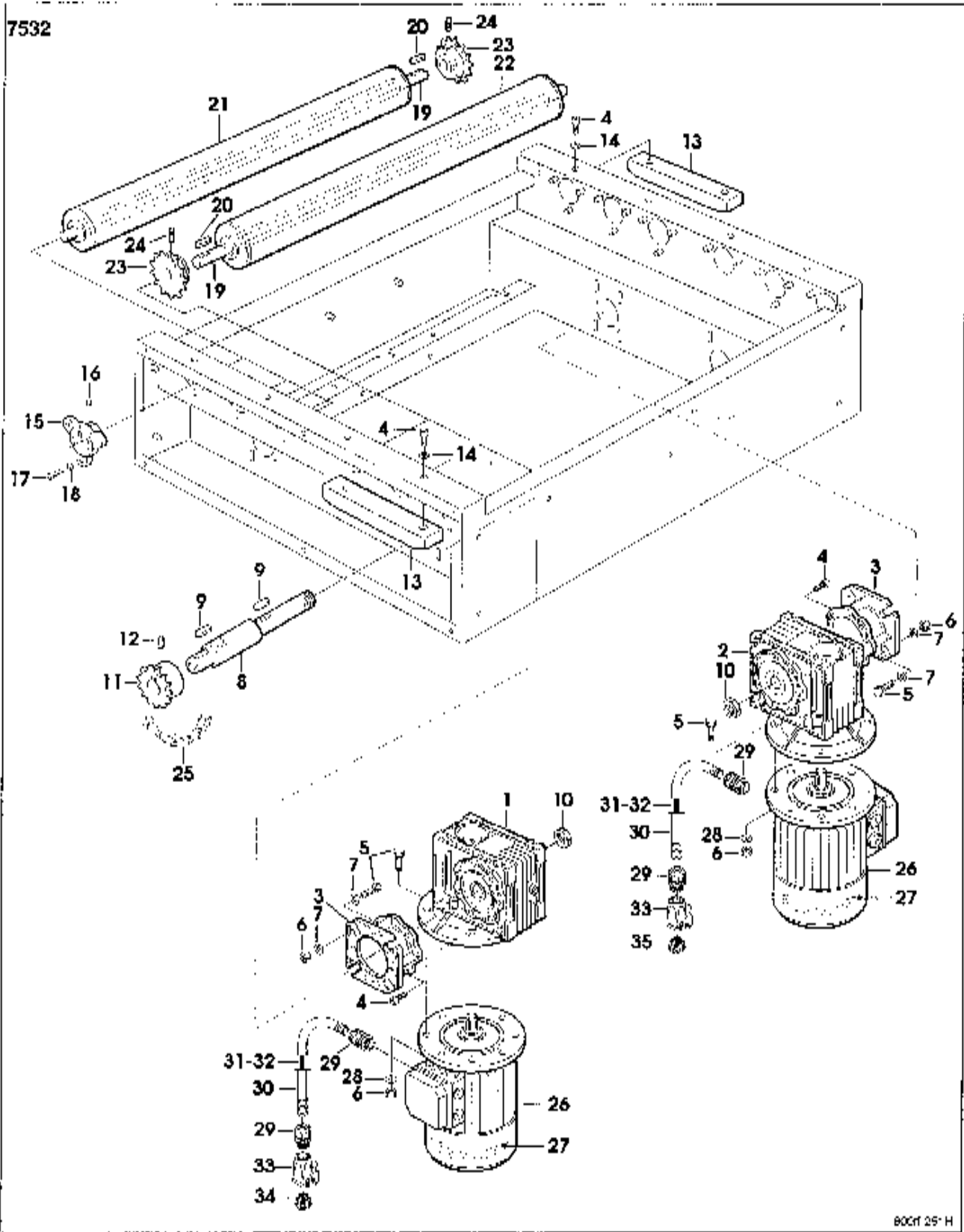


Figure 7-24. Infeed Conveyor Drive Assembly

## Parts List - Infeed Conveyor Drive Assembly

Item Number	Part Number	Description	Qty
1	78-8114-4827-9	GEARBOX, NMRV40, i20, PAM63, B5	1
2	78-8114-4826-1	GEARBOX, NMRV40, i10, PAM63, B5	1
3	78-8114-4828-7	FLANGE, Gearbox	2
4	26-1003-7957-2	SCREW, Soc. Hd., Hex Hd., M6 x 16	12
5	78-8017-9301-5	SCREW, Hex Hd., M8 x 25	16
6	26-1003-6904-5	NUT, Hex, M8	16
7	78-8017-9318-9	WASHER, Plain, Metric, 8mm	16
8	78-8114-4829-5	SHAFT, Gearbox	2
9	78-8057-5811-3	KEY, 6 x 6 x 20 mm.	4
10	78-8017-9169-6	NUT, M18 x 1	2
11	78-8076-5366-8	SPROCKET, Z=16, 3/8-inch	2
12	78-8059-5617-0	SET SCREW, M6 x 8	2
13	78-8114-4830-3	SLIDE, Chain	2
14	26-1000-0010-3	WASHER, Flat, M6	4
15	78-8091-0736-6	FLANGE, Rollers	12
16	78-8091-0726-7	SET SCREW, M5 x 5	24
17	78-8032-0379-9	SCREW, Soc. Hd., Hex Hd., M4 x 16	36
18	78-8005-5740-3	WASHER, Plain, Metric, 4mm, Nick.	36
19	78-8114-5092-9	SHAFT, Sprocket	6
20	78-8059-5611-3	KEY	6
21	78-8114-4831-1	ROLLER ASSEMBLY	2
22	78-8114-4832-9	ROLLER ASSEMBLY, Gummed	4
23	78-8076-5370-0	SPROCKET, Z=17, 3/8-inch	6
24	78-8059-5613-9	SET SCREW, M5 x 14	6
25	78-8114-4833-7	CHAIN, 3/8-inch, 55 Pitch	2
26	78-8100-0865-2	MOTOR, 200/220V, 50/60Hz	2
27	78-8076-5372-6	FAN, Motor	2
28	78-8005-5736-1	LOCKWASHER, for M8 Screw	8
29	78-8060-7626-7	CONNECTOR	4
30	78-8114-4834-5	CONDUIT, /12, 3 Mt.	1
31	78-8114-4835-2	WIRE, AWG18, Black, 5 Mt.	2
32	78-8114-4836-0	WIRE, AWG16, Yellow/Green, 5 Mt.	1
33	78-8060-7877-6	PLUG HOUSING, Vertical	2
34	78-8060-7875-0	PLUG, Male	1
35	78-8060-7591-3	PLUG	1

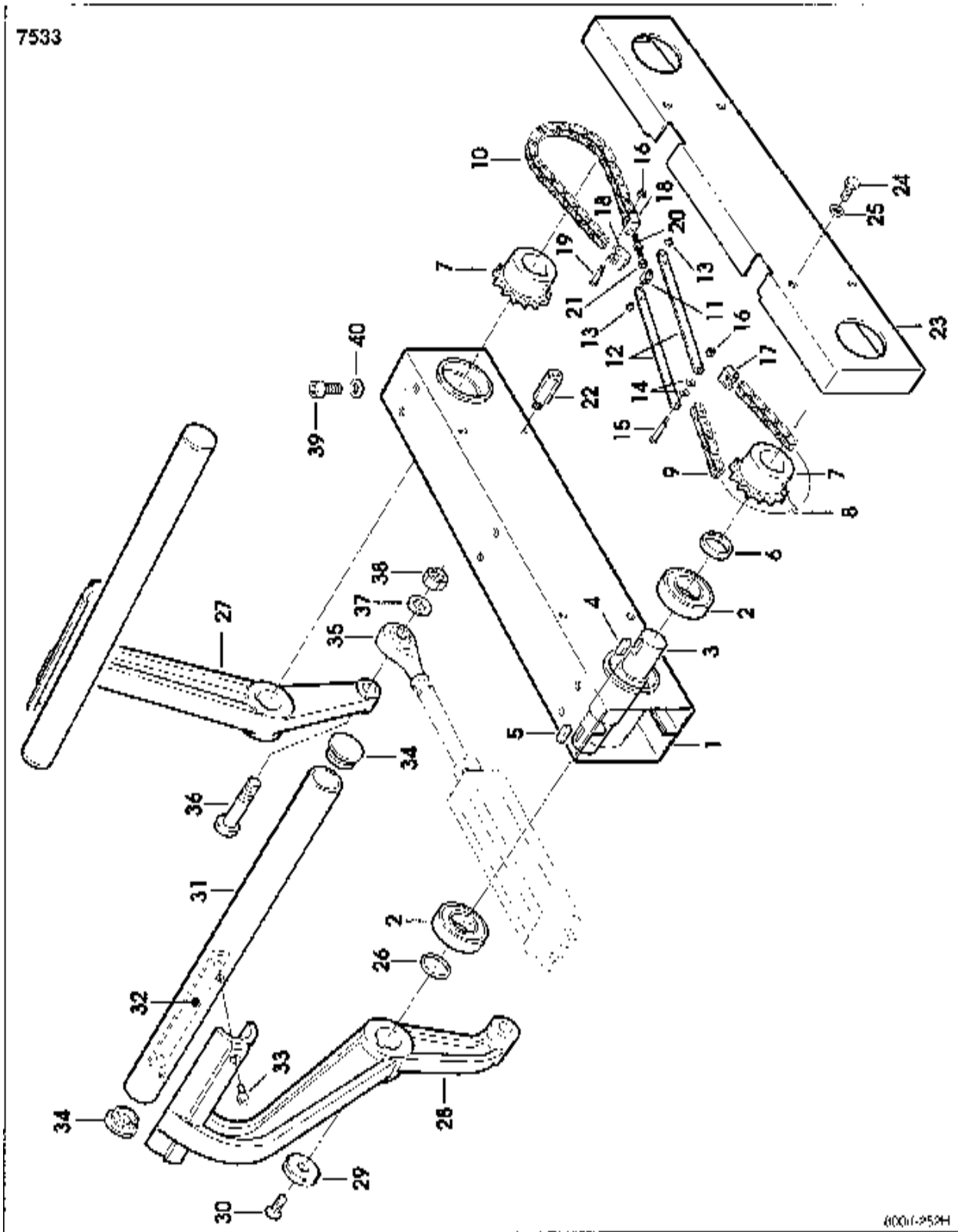


Figure 7-25. Infeed Conveyor Centering Assembly

## Parts List - Infeed Conveyor Centering Assembly

Item Number	Part Number	Description	Qty
1	78-8114-4837-8	BOX	1
2	78-8023-2551-0	BEARING, 6005, 2RS	4
3	78-8076-5352-8	SHAFT, Lever	2
4	78-8057-5811-3	KEY, 6 x 6 x 20mm.	2
5	78-8076-5353-6	KEY, 6 x 6 x 25	2
6	78-8076-5354-4	SPACER, Bearing	2
7	78-8076-5355-1	SPROCKET, Z=20, 3/8-inch	2
8	78-8059-5617-0	SET SCREW, M6 x 8	2
9	78-8114-5089-5	CHAIN, 3/8-inch, 45 Pitch	1
10	78-8055-0719-7	CHAIN, 3/8-inch, 27 Pitch Long	1
11	78-8054-8784-6	BLOCK, Chain	1
12	78-8054-8787-9	CHAIN LINK	2
13	78-8056-3945-3	E-RING, M4	2
14	78-8054-8783-8	WASHER, Special	2
15	78-8060-7519-4	SCREW, M3 x 25	1
16	78-8059-5517-2	NUT, Self-Locking, M3, Zinc. Pl.	4
17	78-8054-8788-7	CHAIN CONNECTOR	1
18	78-8054-8786-1	CHAIN CONNECTOR	2
19	78-8060-7520-2	SCREW, M3 x 20	3
20	78-8054-8785-3	ROD, Threaded, Right/Left	2
21	78-8010-7418-4	NUT, Metric, Hex, Stl., M6	2
22	78-8076-5356-9	SPACER, Mounting	4
23	78-8114-5090-3	COVER	1
24	78-8032-0375-7	SCREW, Metric, Hex Hd., M6 x 16	4
25	26-1000-0010-3	WASHER, Flat, M6	4
26	78-8076-5358-5	SPACER, Bearing	2
27	78-8076-5359-3	LEVER, Right	1
28	78-8076-5360-1	LEVER, Left	1
29	78-8076-5361-9	WASHER, Special	2
30	78-8057-5716-4	SCREW, Flat Hd. Soc., M8 x 15	2
31	78-8114-8091-1	GUIDE, Infeed	2
32	78-8076-5363-5	PLATE, Bar	2
33	26-1003-7957-2	SCREW, Soc. Hd., Hex Hd., M6 x 16	4

**Parts List - Infeed Conveyor Centering Assembly (Continued)**

<b>Item Number</b>	<b>Part Number</b>	<b>Description</b>	<b>Qty</b>
34 .....	78-8054-8779-6 .....	CAP, End .....	4
35 .....	78-8057-5747-9 .....	MOUNT, Cylinder Rod End .....	1
36 .....	78-8076-5364-3 .....	SCREW, Hex Hd., M12 x 55 .....	1
37 .....	78-8017-9059-9 .....	WASHER, Flat for M12 Screw .....	2
38 .....	78-8060-7532-7 .....	NUT, Self-Locking, M12 .....	1
39 .....	26-1003-7964-8 .....	SCREW, Soc. Hd., Hex Soc. Dr., M8 x 20 .....	6
40 .....	78-8017-9318-9 .....	WASHER, Plain, Metric, 8mm .....	6

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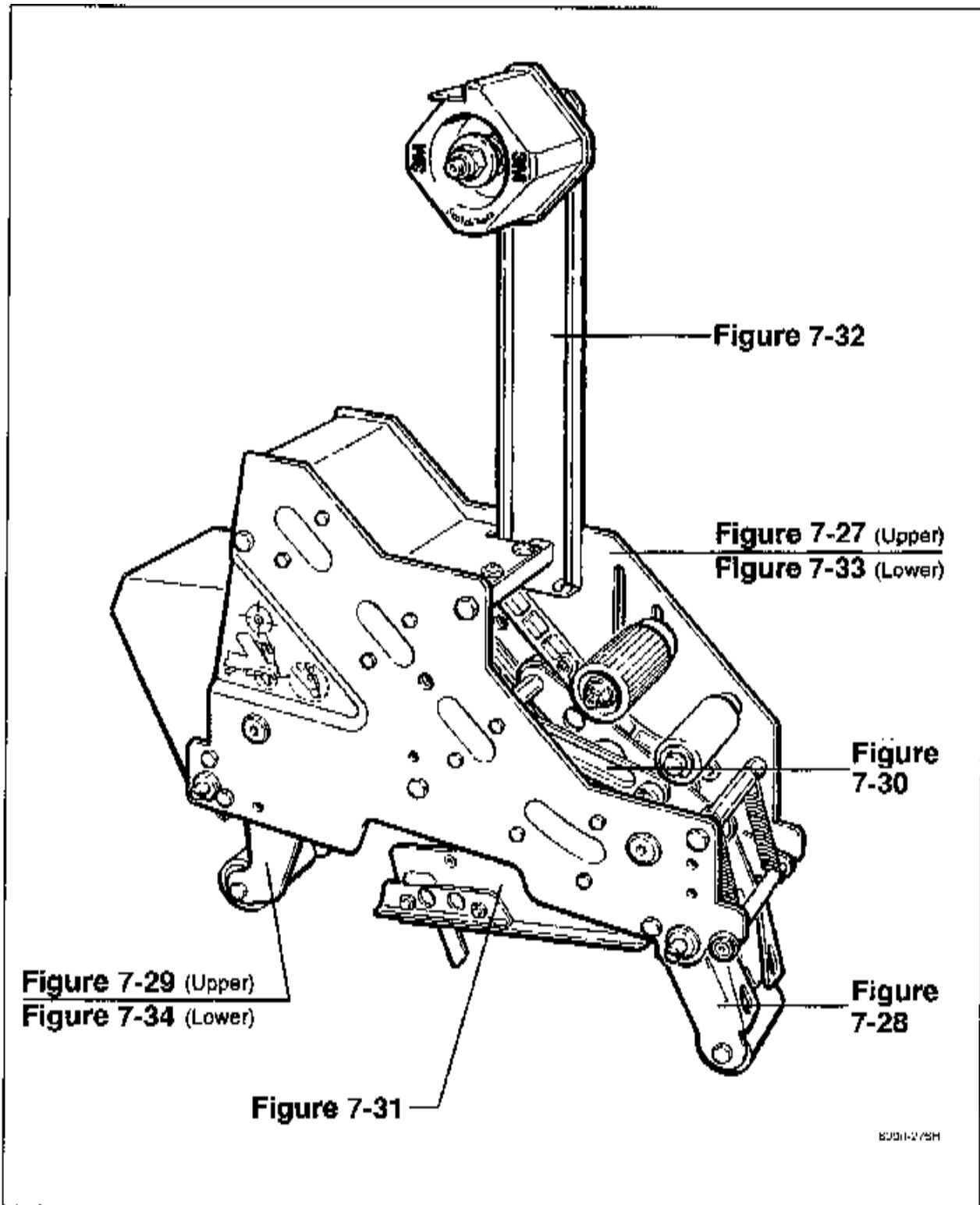


Figure 7-26. Taping Head Assemblies - AccuGlide™ II STD 2-Inch



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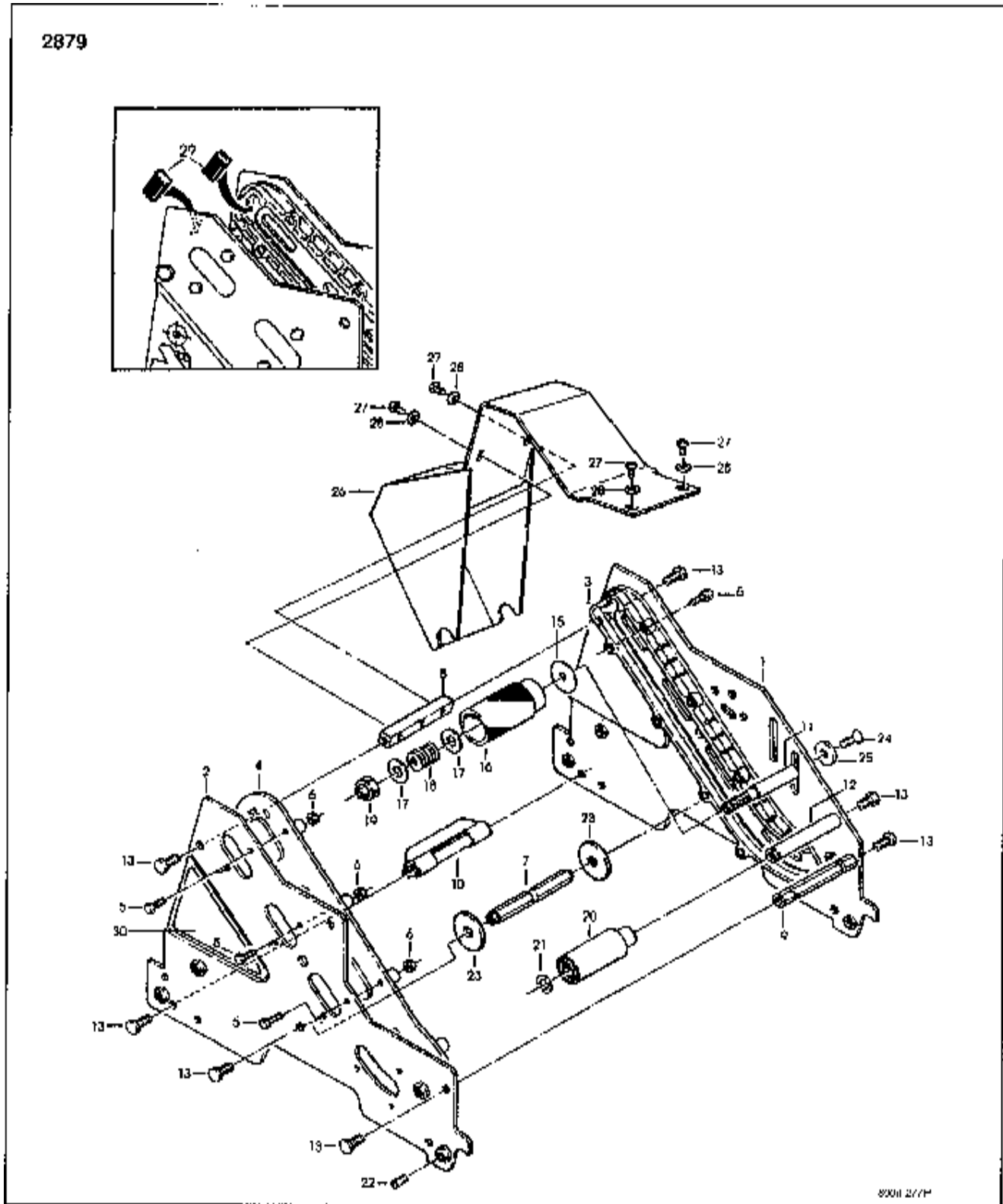


Figure 7-27. Frame Assembly for Upper Head

## Parts List – Frame Assembly for Upper Head

Item Number	Part Number	Description	Qty
1	78-8070-1386-3	FRAME, Tape Mount Upper Assembly	1
2	78-8070-1387-1	FRAME, Front Upper Assembly	1
3	78-8068-4143-9	GUIDE, #1	1
4	78-8068-4144-7	GUIDE, #2	1
5	83-0002-7336-3	SCREW, Hex Hd., M4 x 14	18
6	78-8010-7416-8	NUT, Hex Jam, M4	18
7	78-8070-1251-9	SPACER, Spring	1
8	78-8054-8764-8	SPACER, 10 x 10 x 90mm	1
9	78-8052-6560-6	SPACER, Front	1
10	78-8060-7936-0	BRUSH ASSEMBLY	1
11	78-8052-6564-8	SHAFT, Tension Roller	1
12	78-8052-6568-9	SHAFT, Wrap Roller	1
13	26-1003-5829-5	SCREW, Hex Hd., M6 x 12	9
15	78-8100-1009-6	WASHER, Special	1
16	78-8052-6565-5	ROLLER, Top Tension	1
17	78-8052-6566-3	WASHER, Friction	2
18	78-8052-6567-1	SPRING, Compression	1
19	78-8017-9077-1	NUT, Self-Locking, M10 x 1	1
20	78-8052-6569-7	ROLLER, Wrap	1
21	26-1000-1613-3	RING, Retaining, Tru-Arc #1-420-0120-100	1
22	78-8076-4500-3	STUD, Mounting	4
23	78-8076-5242-1	STOP, Cut-Off Frame	2
24	78-8060-8179-6	SCREW, Flat Hd. Hex, M6 x 20	1
25	78-8076-5477-3	WASHER, Special /6.5 x 20 x 4	1
26	78-8100-1047-6	GUARD, Head	1
27	78-8060-8087-1	SCREW, M5 x 10	4
28	78-8005-5741-1	WASHER, Flat, M5	4
29	78-8076-4734-8	BUMPER	2
30	78-8070-1365-7	LABEL, Threading, English Language	1

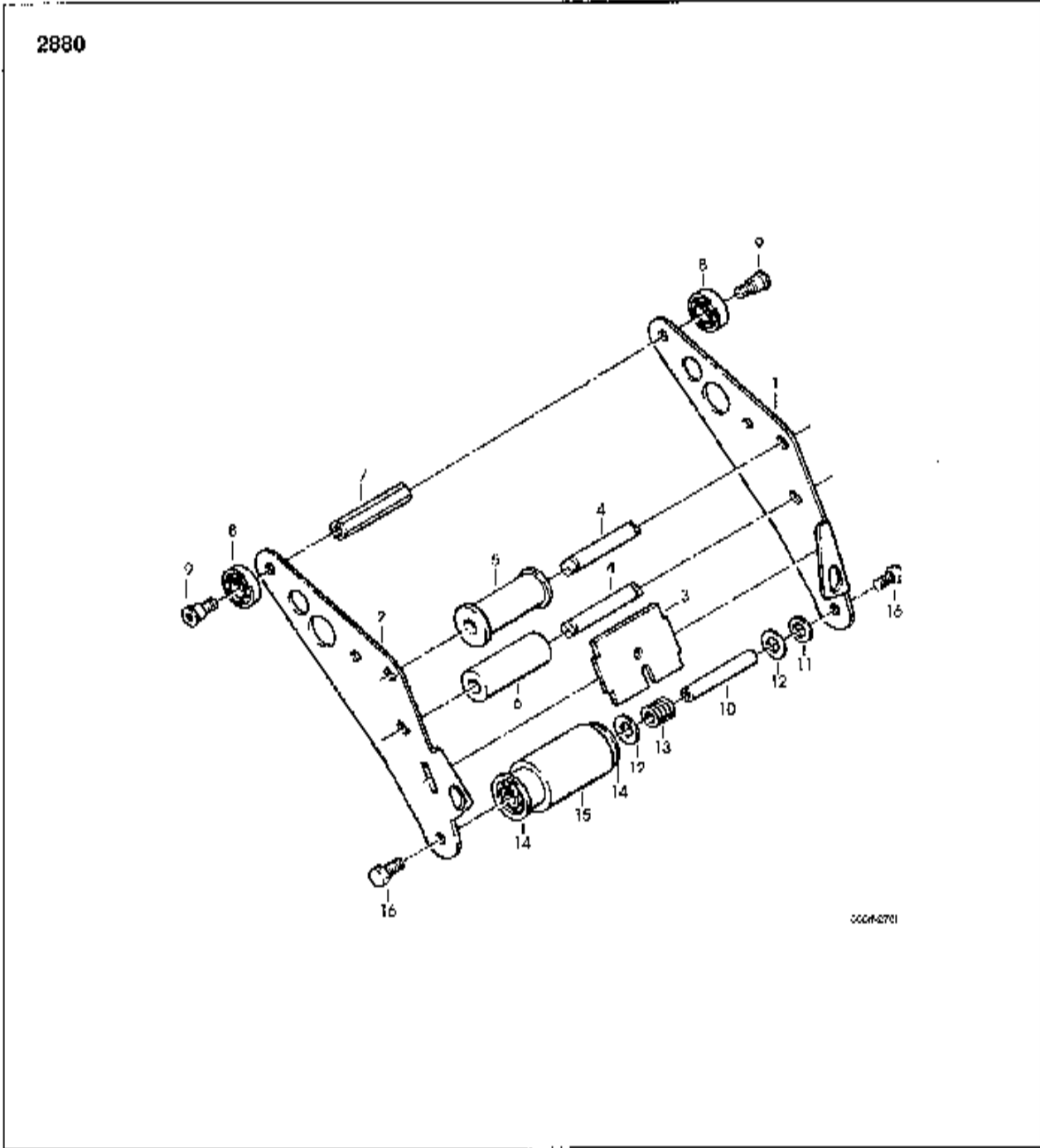


Figure 7-28. Applying Assembly for Upper and Lower Heads

## Parts List – Applying Assembly for Upper and Lower Heads

Item Number	Part Number	Description	Qty
1	78-8070-1206-3	APPLYING ARM #1	1
2	78-8070-1207-1	APPLYING ARM #2	1
3	78-8070-1221-2	PLATE, Tape	1
4	78-8070-1309-5	SHAFT ROLLER	2
5	78-8070-1367-3	ROLLER, Knurled Assembly	1
6	78-8070-1266-7	ROLLER, Wrap	1
7	78-8052-6580-4	SPACER	1
8	78-8017-9082-1	BEARING, Special, 30mm	2
9	78-8017-9106-8	SCREW, Bearing Shoulder	2
10	78-8052-6575-4	SHAFT, Roller	1
11	78-8017-9074-8	WASHER, Nylon, 15mm	1
12	78-8052-6566-3	WASHER, Friction	2
13	78-8052-6567-1	SPRING, Compression	1
14	78-8060-8395-8	BUSHING, Applying Roller	1
15	78-8057-6179-4	ROLLER, Applying	1
16	26-1003-5829-5	SCREW, Hex Hd., M6 x 12	2

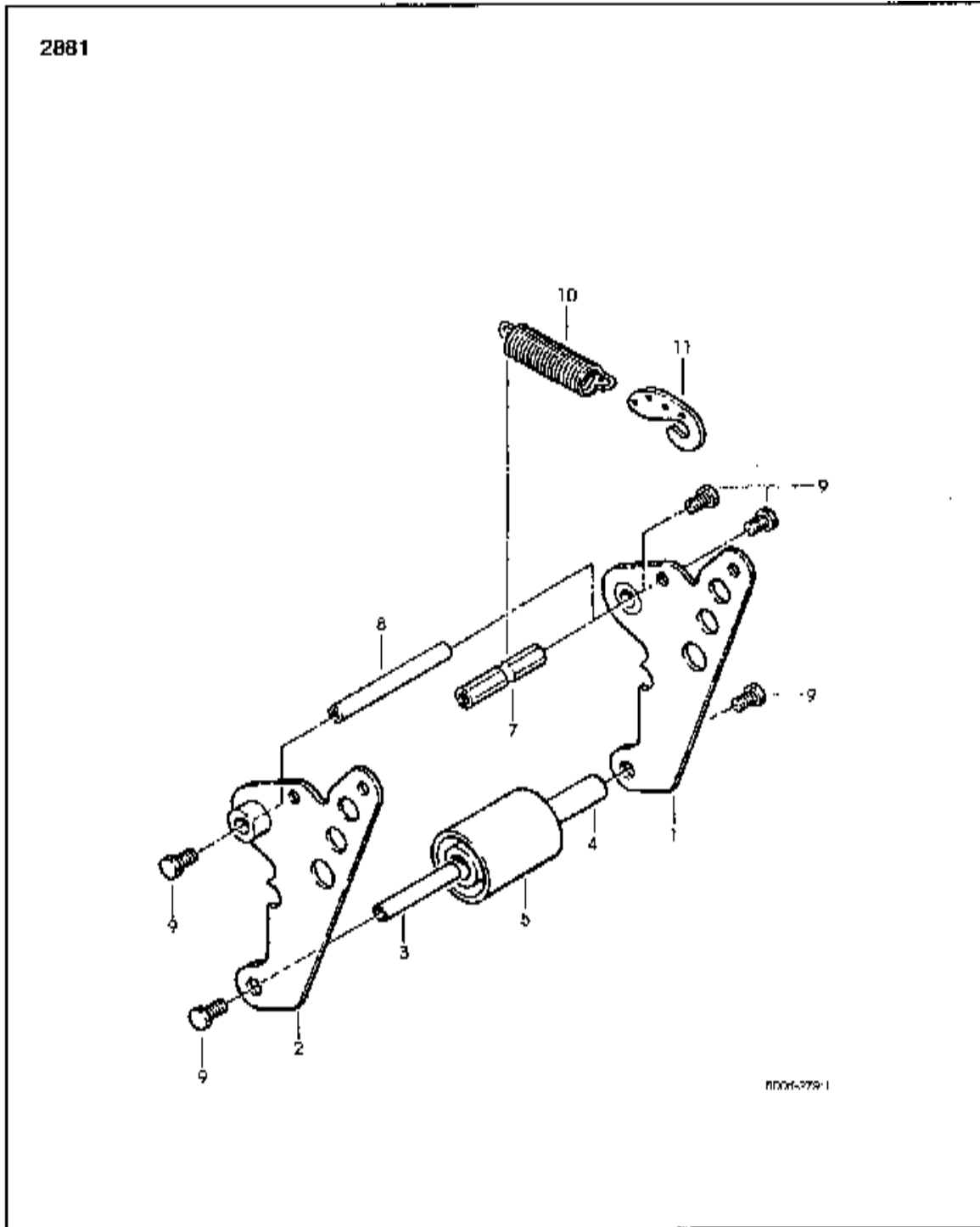


Figure 7-29. Buffering Assembly for Upper Head

## Parts List – Buffing Assembly for Upper Head

Item Number	Part Number	Description	Qty
1	78-8070-1392-1	BUFFING ARM, Sub Assembly	1
2	78-8070-1391-3	BUFFING ARM, Sub Assembly	1
3	78-8052-6575-4	SHAFT, Roller	1
4	78-8052-6586-1	BUSHING, Buffing Roller	1
5	78-8057-6178-6	ROLLER, Buffing	1
7	78-8070-1220-4	SPACER, Spring	1
8	78-8017-9109-2	SHAFT, 10 x 90mm	1
9	26-1003-5829-5	SCREW, Hex Hd., M6 x 12	6
10	78-8070-1274-1	SPRING, Upper (Silver)	1
11	78-8070-1244-4	HOLDER, Spring	1

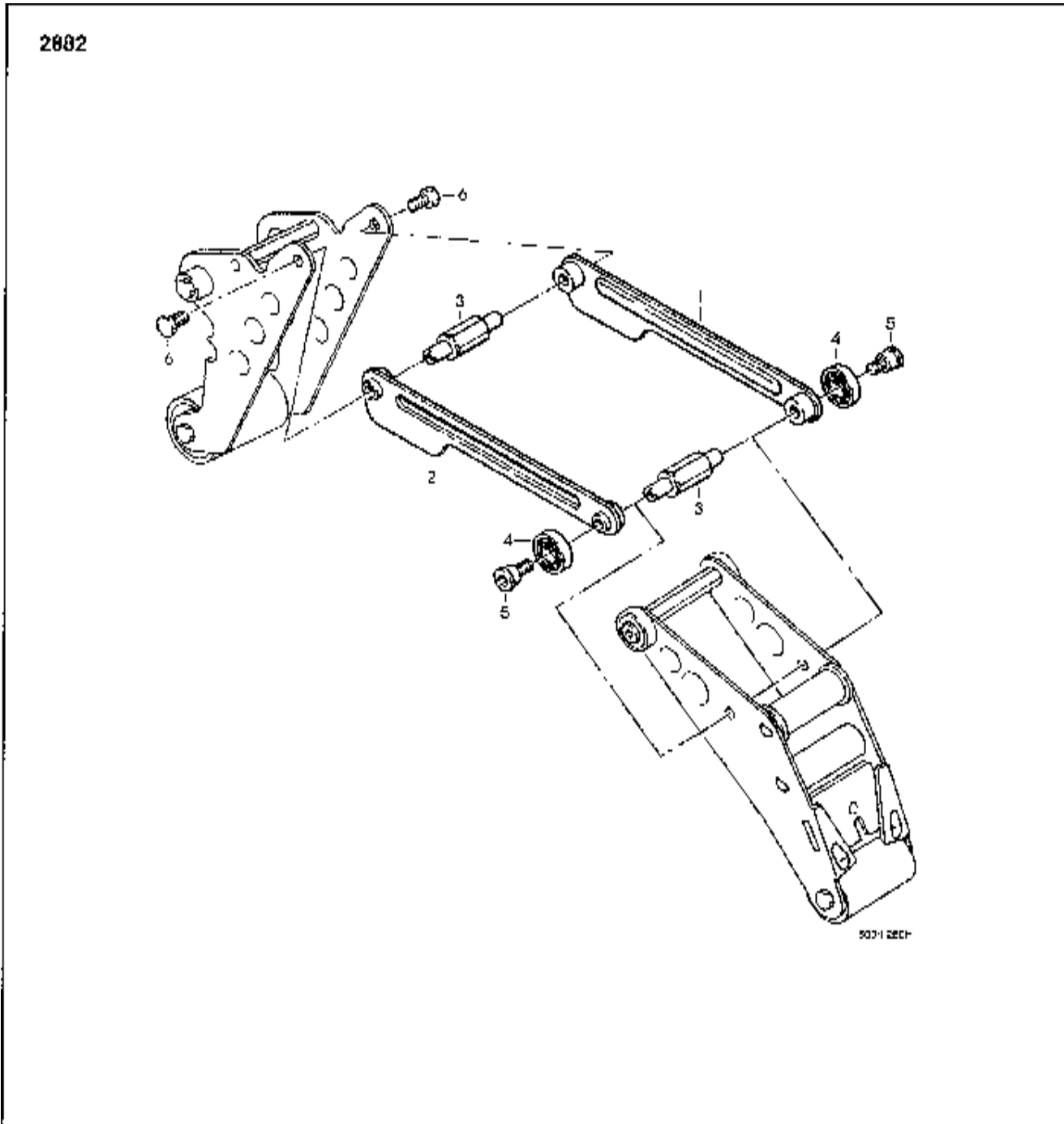


Figure 7-30. Link Assembly for Upper and Lower Heads



## Parts List – Link Assembly for Upper and Lower Heads

Item Number	Part Number	Description	Qty
1	78-8070-1388-9	LINK, Arm Bushing Assembly	1
2	78-8070-1389-7	LINK, Arm Bushing Assembly	1
3	78-8070-1271-7	SHAFT, Pivot	2
4	78-8017-9082-1	BEARING, Special 30mm	2
5	78-8017-9106-8	SCREW, Bearing Shoulder	2
6	26-1003-5829-5	SCREW, Hex Hd., M6 x 12	2

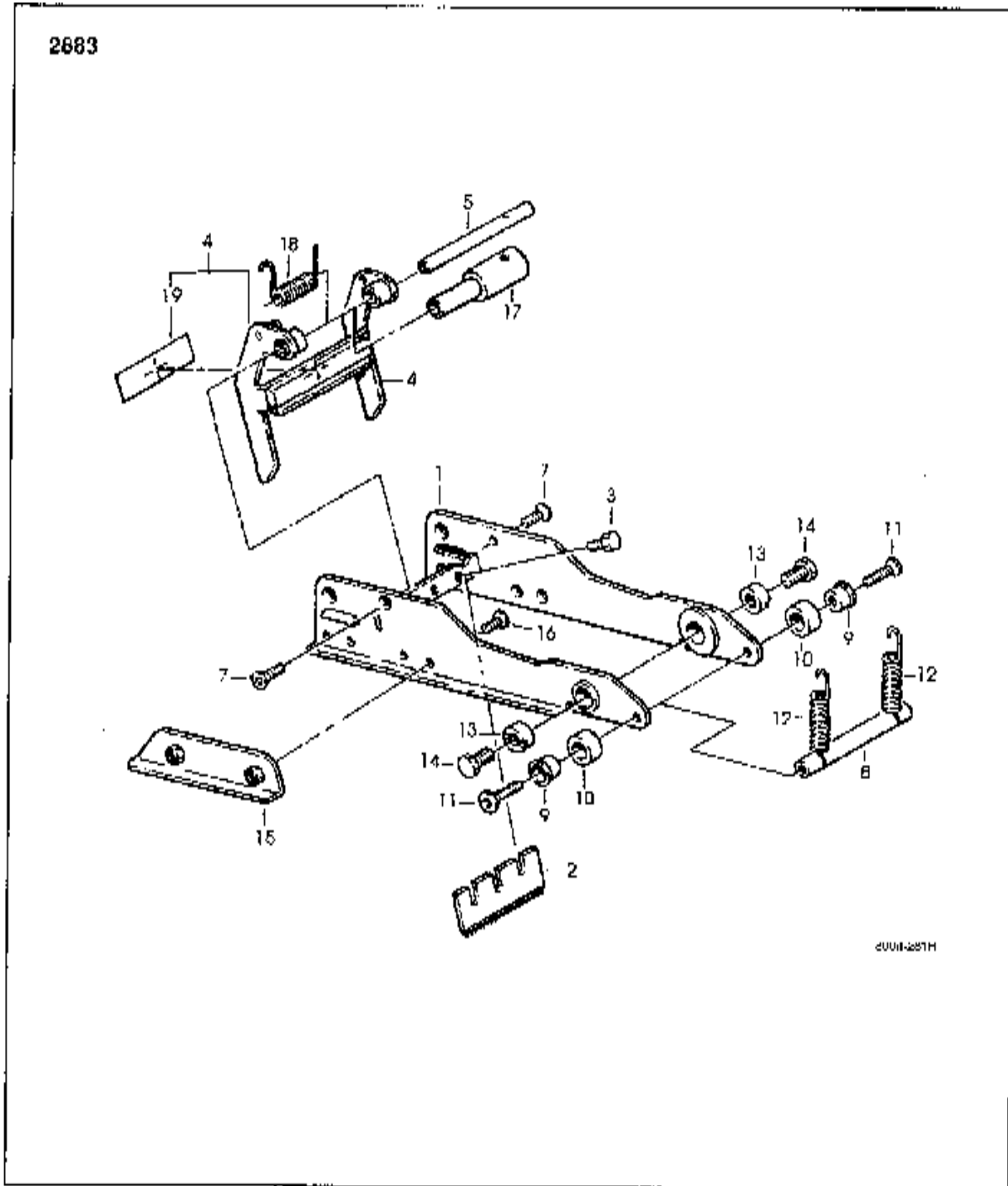


Figure 7-31. Knife Assembly for Upper and Lower Heads

## Parts List – Knife Assembly for Upper and Lower Heads

Item Number	Part Number	Description	Qty
1	78-8070-1217-0	FRAME, Cut-Off Weldment	1
2	78-8017-9173-8	KNIFE, 65mm/2.56-inch	1
3	26-1002-5817-2	SCREW, Hex Hd., M5 x 8	2
4	78-8070-1371-5	KNIFE GUARD ASSEMBLY, W/English Language Label	1
5	78-8052-6597-8	SHAFT, Knife Guard	1
7	26-1005-4758-2	SCREW, Flat Hd, Soc Dr, M4 x 10	2
8	78-8017-9135-7	SHAFT, Spacer	1
9	78-8052-6600-0	SPACER	2
10	78-8070-1269-1	BUMPER	2
11	26-1005-4757-4	SCREW, Flat Hd, Soc Dr, M5 x 20	2
12	78-8052-6602-6	SPRING, Cutter	2
13	78-8017-9132-4	PIVOT, Cutter Lever	2
14	26-1003-5828-7	SCREW, Spec., Hex Hd., M6 x 10	2
15	78-8070-1216-2	SLIDE, Extension	2
16	26-1008-6574-5	SCREW, Flat Hd., Phil.Dr., M4 x 10	4
17	78-8113-7031-7	BUSHING, 58.5mm Long	1
18	78-8113-7030-9	SPRING, Torsion	1
19	78-8070-1335-0	LABEL, Warning, English	1

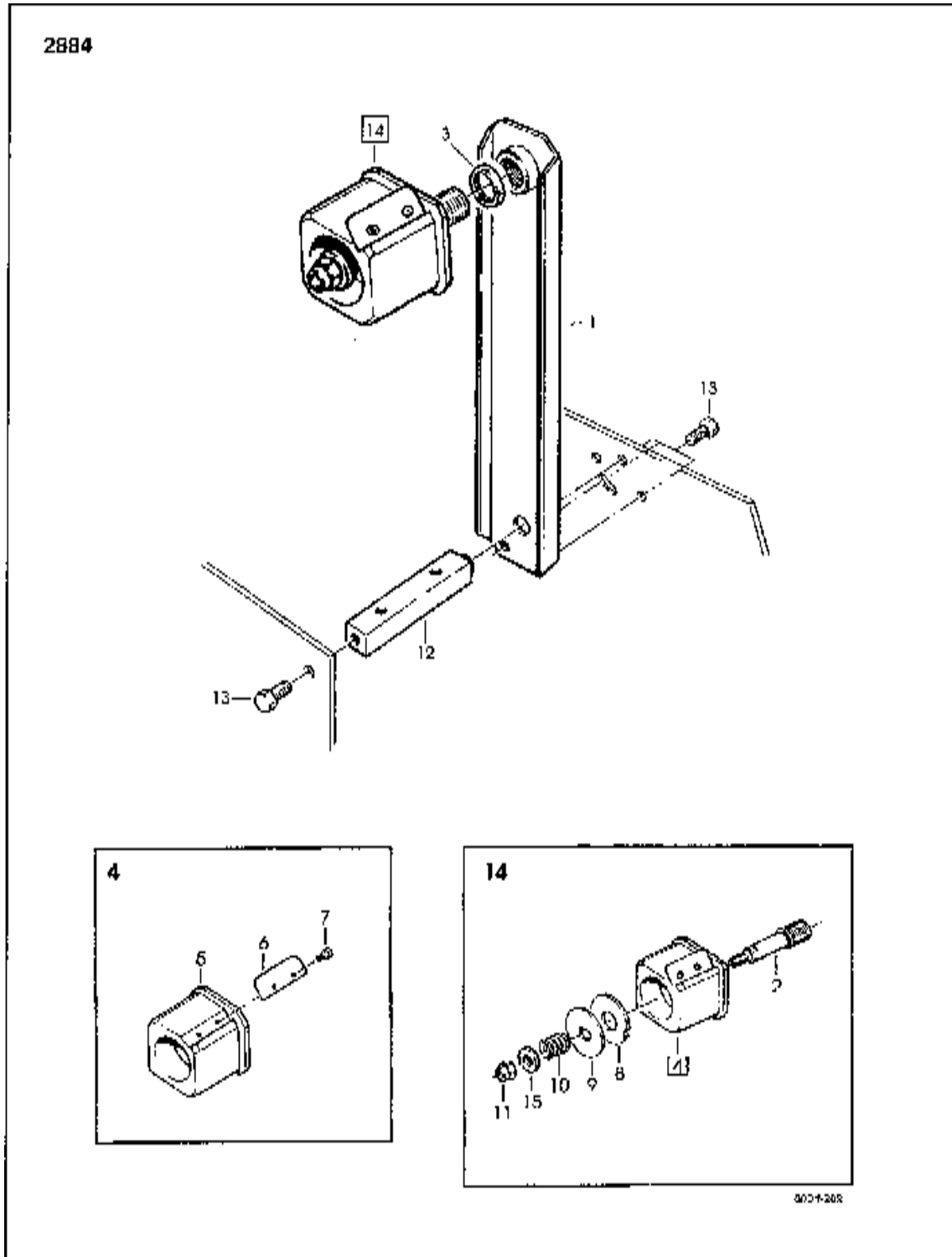


Figure 7-32. Tape Drum and Bracket for Upper and Lower Heads

## Parts List – Tape Drum and Bracket for Upper and Lower Heads

Item Number	Part Number	Description	Qty
1	78-8070-1395-4	BRACKET, Bushing Assembly	1
2	78-8076-4519-3	SHAFT, Tape Drum, 50mm	1
3	78-8017-9169-6	NUT, M18 x 1	1
4	78-8070-1569-4	TAPE DRUM SUB-ASSEMBLY	1
5	78-8052-6749-5	TAPE DRUM	1
6	78-8052-6268-6	LEAF SPRING	1
7	26-1002-5753-9	SCREW, Self Tapping	2
8	78-8060-8172-1	WASHER, Friction	1
9	78-8052-6271-0	WASHER, Tape Drum	1
10	78-8100-1048-4	SPRING, Core Holder	1
11	78-8017-9077-1	NUT, Self-Locking, M10 x 1	1
12	78-8100-1046-8	SPACER, Bracket	1
13	26-1003-5829-5	SCREW, Hex Hd., M6 x 12	4
14	78-8060-8474-1	TAPE DRUM ASSEMBLY	1
15	26-1004-5510-9	WASHER, Plain, M10	1

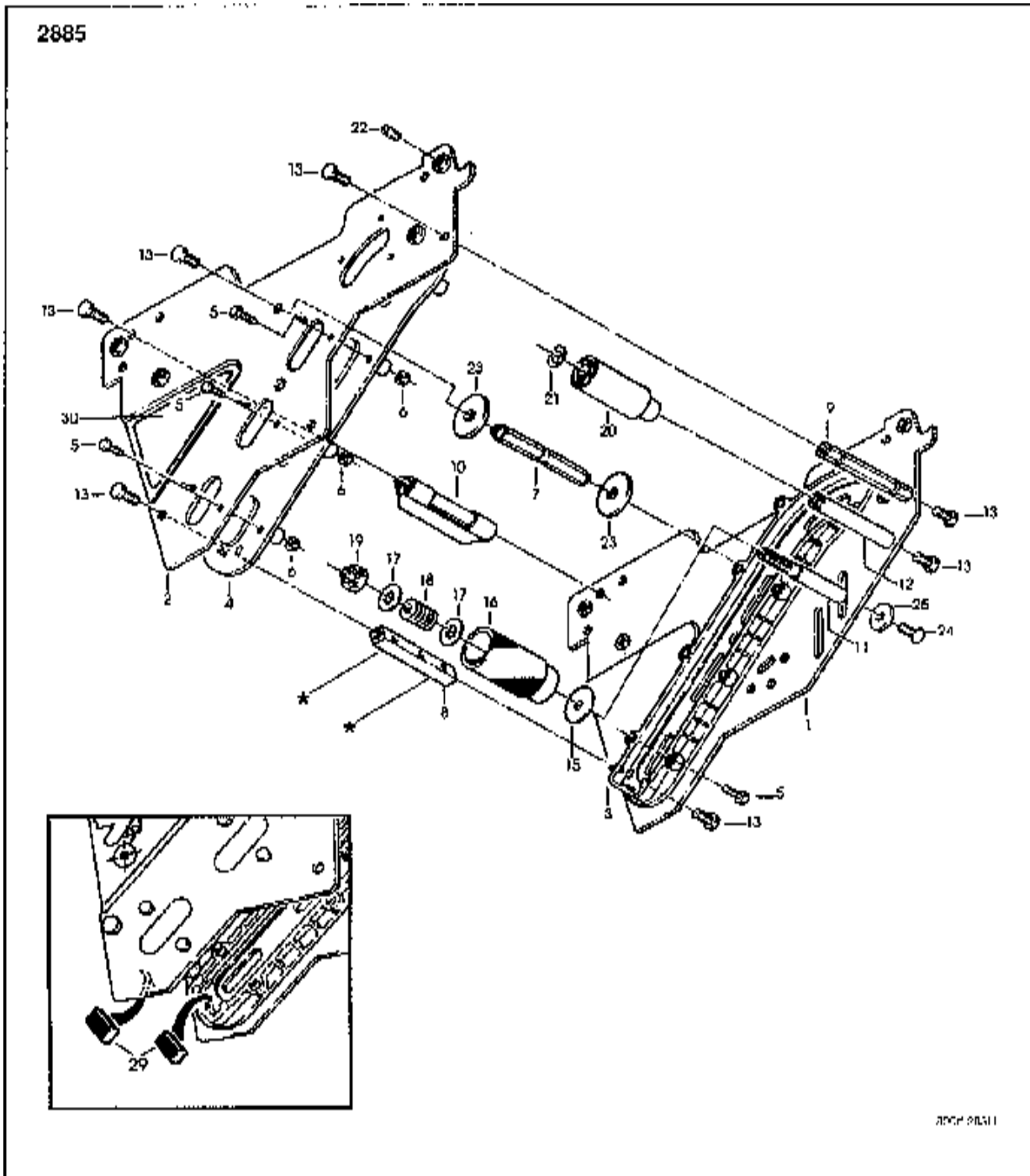


Figure 7-33. Frame Assembly for Lower Head

## Parts List – Frame Assembly for Lower Head

Item Number	Part Number	Description	Qty
1	78-8070-1369-9	FRAME, Tape Mount Lower Assembly	1
2	78-8070-1370-7	FRAME, Front Lower Assembly	1
3	78-8068-4144-7	GUIDE, #2	1
4	78-8068-4143-9	GUIDE, #1	1
5	83-0002-7336-3	SCREW, Hex Hd., M4 x 14	18
6	78-8010-7416-8	NUT, Hex, M4	18
7	78-8070-1251-9	SPACER, Spring	1
8	78-8054-8764-8	SPACER, 10 x 10 x 90mm	1
9	78-8052-6560-6	SPACER, Front	1
10	78-8060-7936-0	BRUSH ASSEMBLY	1
11	78-8052-6564-8	SHAFT, Tension Roller	1
12	78-8052-6568-9	SHAFT, Wrap Roller	1
13	26-1003-5829-5	SCREW, Hex Hd., M6 x 12	9
15	78-8100-1009-6	WASHER, Special	1
16	78-8052-6606-7	ROLLER, Tension Bottom	1
17	26-1004-5510-9	WASHER, Plain, M10	2
18	78-8052-6567-1	SPRING, Compression	1
19	78-8017-9077-1	NUT, Self-Locking, M10 x 1	1
20	78-8052-6569-7	ROLLER, Wrap	1
21	26-1000-1613-3	RING, Retaining, Tru-Arc #1-420-0120-100	1
22	78-8076-4500-3	STUD, Mounting	4
23	78-8076-5242-1	STOP, Cut-Off Frame	2
24	78-8060-8179-6	SCREW, Flat Hd. Hex, M6 x 20	1
25	78-8076-5477-3	WASHER, Special /6.5 x 20 x 4	1
29	78-8076-4734-8	BUMPER	2
30	78-8070-1364-0	LABEL, Threading, English Language	1

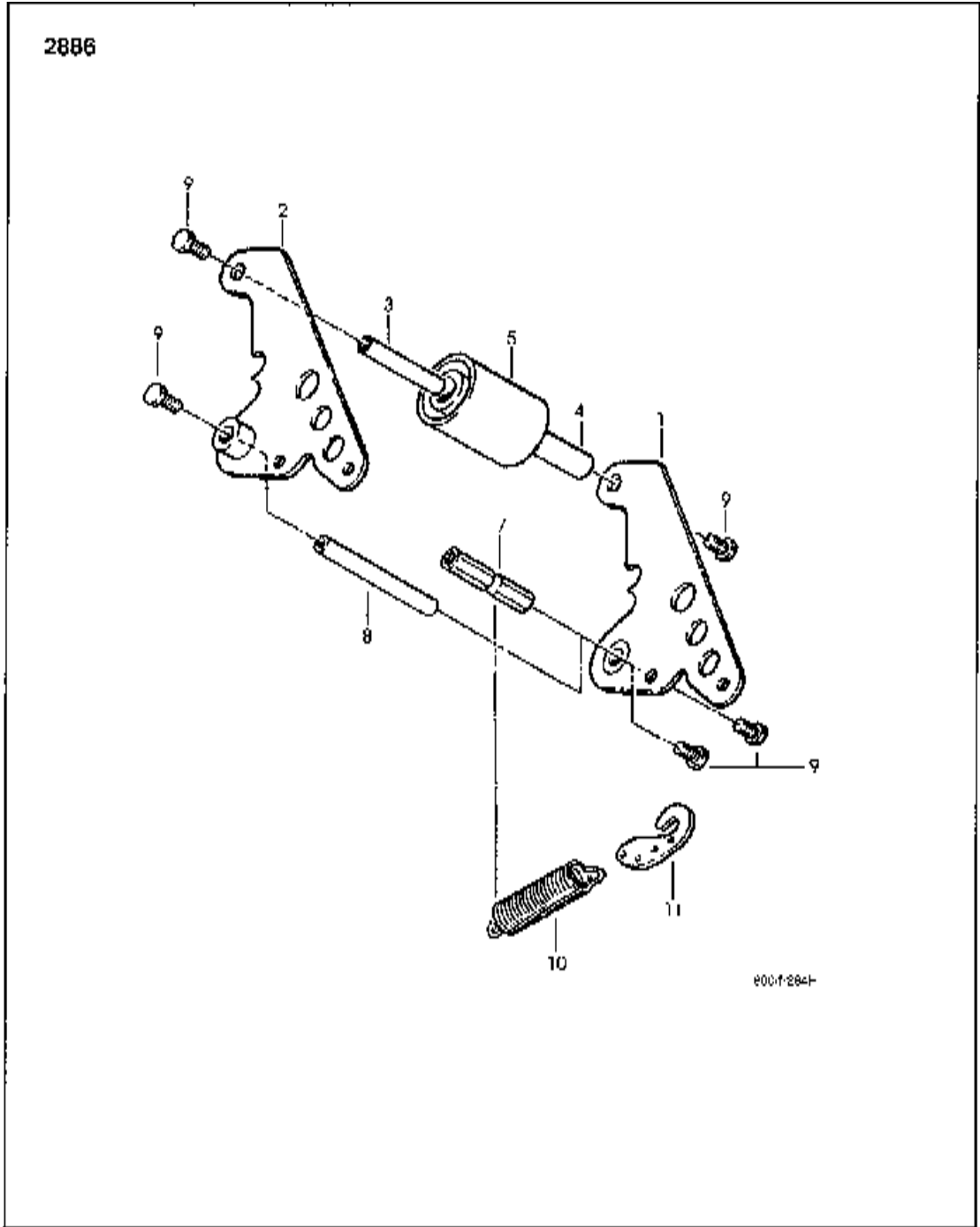


Figure 7-34. Buffing Assembly for Lower Head



## Parts List – Buffing Assembly for Lower Head

Item Number	Part Number	Description	Qty
1	78-8070-1391-3	BUFFING ARM SUB ASSEMBLY	1
2	78-8070-1392-1	BUFFING ARM SUB ASSEMBLY	1
3	78-8052-6575-4	SHAFT, Roller	1
4	78-8052-6586-1	BUSHING, Buffing Roller	1
5	78-8057-6178-6	ROLLER, Buffing	1
7	78-8070-1220-4	SPACER, Spring	1
8	78-8017-9109-2	SHAFT, 10 x 90mm	1
9	26-1003-5829-5	SCREW, Hex Hd., M6 x 12	6
10	78-8070-1273-3	SPRING, Lower (Black)	1
11	78-8070-1244-4	HOLDER, Spring	1

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## 8. Preventative Maintenance

### 8-1. General

The Model 800rf Case Sealer is designed for long, trouble-free service.

#### 8-1-1. Maintenance

The machine performs best when it receives routine maintenance and cleaning. Machine components that fail or wear excessively should be promptly repaired or replaced to prevent damage to other portions of the machine or to the product.

#### 8-1-2. Tool Kit

Since the case sealer uses metric fasteners, a tool kit consisting of open-end and hex-socket wrenches is provided with the machine.

#### Warning

**Turn off electrical power and compressed air at the machine. Disconnect the power cord from the electrical supply and disconnect the air supply line before beginning maintenance. If the power and compressed air are not disconnected, severe personal injury could result. Use care when replacing the tape cut-off knives. They are extremely sharp and could cause severe personal injury.**

### 8-2. Cleaning

Regular slotted containers produce a great deal of dust and paper chips when processed or handled in equipment. If this dust is allowed to build up on machine components, it can cause component wear and overheating of the drive motors. The dust buildup can best be removed from the machine by a shop vacuum.

Depending on the number of boxes sealed in the case sealer, cleaning should be done approximately once per month. If the boxes sealed are dirty, or if the environment in which the machine operates is dusty, more frequent cleaning may be necessary.

#### Caution

**Never attempt to remove dirt by blowing it out with compressed air. This causes dirt to be blown inside the motors and between sliding surfaces. Dirt in these areas causes serious damage and rapid wear. Never wash the machine with water or subject it to conditions that cause moisture condensation on components. Serious damage could result.**

1. Vacuum the machine to remove dust and paper chips.
2. Wipe off grime with a soft cloth dampened with 3M Natural Cleaner (62-4668-2730-0).
3. Wipe off the tape cut-off knives with a cloth dampened with 3M Natural Cleaner. Use a motion away from the sharp edge.
4. Drain any water from the bowl of the Main Air Pressure Regulator/Filter and clean it as necessary.
5. Wipe off the conveyor bed rollers with a cloth dampened with 3M Natural Cleaner. Make sure the rollers are free on their shafts. If they are not free, spray them with 3M Natural Cleaner.

### 8-3. Lubrication

Like most other equipment, the case sealer must be lubricated periodically to ensure long, trouble-free service. Most of the machine bearings are permanently lubricated and sealed and do not need further lubrication. The drive motors and cylinders are also permanently lubricated and do not require additional lubrication.

#### ⚠ Caution

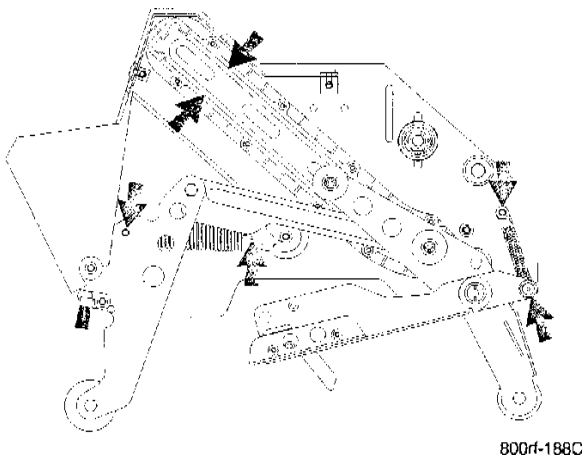
During lubrication, wipe off all excess lubricant and grease. Excess lubricant attracts dust and dirt that can cause equipment wear and jamming. Take care that no lubricant or grease remains on the surface of rollers around which tape is wrapped.

#### 8-3-1. Taping Heads

Figures 8-1 and 8-2 illustrate the taping head points that should be lubricated after every 250 hours of operation.

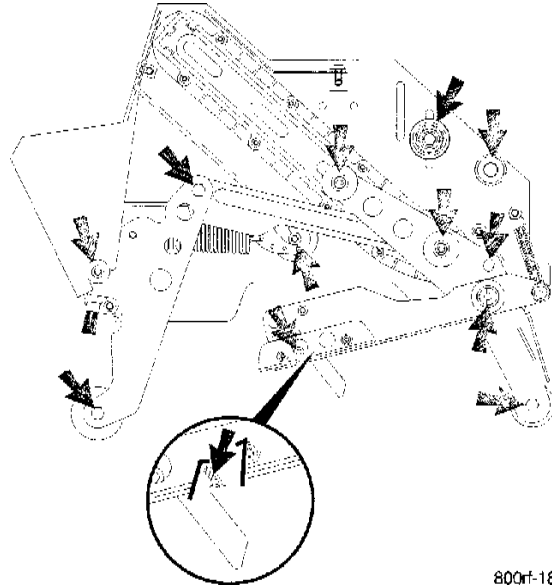
For each taping head:

1. Apply a small amount of multipurpose grease to the guides and to the ends of each spring where the spring loops are secured. Refer to Figure 8-1.



**Figure 8-1. Lubricating Guides and Spring Loops**

2. Apply 3M 5-Way Penetrant (62-4696-2730-1) to all pivot points of the taping head. Refer to Figure 8-2.
3. Apply 3M 5-Way Penetrant to the tape cut-off knife oiler pad. Saturate the pad.



**Figure 8-2. Lubricating Pivot Points and Oiler Pad**

#### 8-3-2. Main Assembly and Infeed Assembly

With reference to Figure 8-3 and the associated figures in Section 7, Illustrated Parts Breakdown, lubricate the machine wear points as indicated.

##### 1. Side Belt Drive Closure Assembly

At 250 hours, use multipurpose grease.

- Lightly coat chain pitches (Figure 7-5, # 17 and #18).
- Lightly coat outside diameter of the shafts of the arm assembly (Figure 7-5, #1, #2, #3, and #4).
- Lightly coat inside diameter of bushing (Figure 7-13, #89) use grease fitting, (Figure 7-5, #38) use needle point gun on this fitting.

**2. Side Belt Drive Assembly**

At 250 hours, use multipurpose grease.

- Lightly coat chain pitches (Figure 7-13, # 75).

**3. Column Assembly**

At 250 hours, use multipurpose grease.

- Lightly coat outside surface of the column guides (Figure 7-6, #3).

**4. Side Drive Belt/ Compression Roller Assembly Rails**

At 250 hours, use 3M 5-Way Penetrant (62-4696-2730-1).

- Lightly coat outside surface of bushing (Figure 7-9, # 9).

At 250 hours, use multipurpose grease.

- Lightly coat rails (Figure 7-9, #4).

**5. Infeed Roller Assemblies**

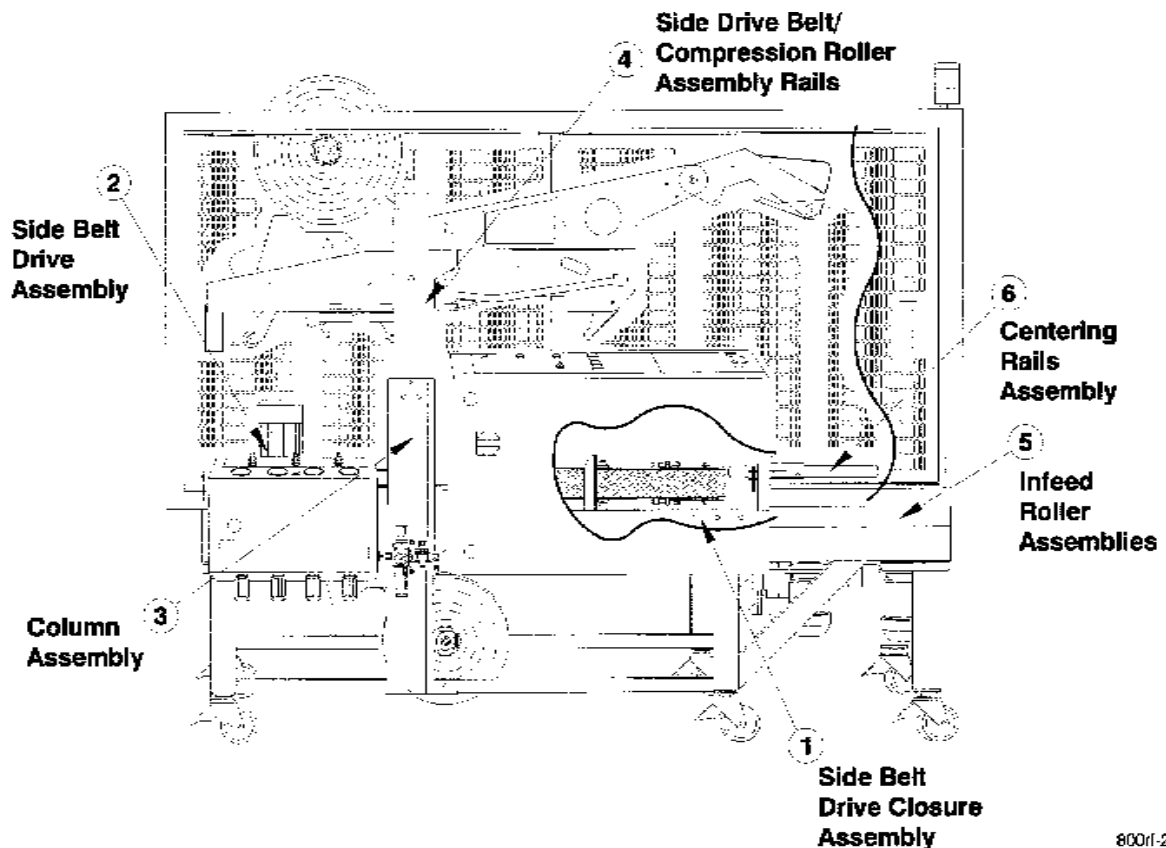
At 250 hours, use multipurpose grease.

- Coat two (2) roller chains (Figure 7-24, # 25) both sides, left front and right rear.
- Coat two (2) drive motor sprockets (Figure 7-24, # 11) both sides, left front and right rear.
- Coat six (6) roller sprockets (Figure 7-24, # 23) both sides, left front and right rear.
- Coat six (6) roller shafts (Figure 7-24, # 19) both sides, left front and right rear.

**6. Centering Rails Assembly**

At 250 hours, use multipurpose grease.

- Lightly coat chain pitches (Figure 7-25, #9 and #10).



8001-299C

Figure 8-3. Lubricating Main Assembly and Infeed Assembly

## 8-4. Maintenance Schedule

### 1-1-1. Taping Heads

The following table provides recommendations for inspecting and replacing parts, and cleaning and lubricating the upper and lower taping heads.

Taping Head	Inspect/Replace	Clean	Lubricate	Counter Cycles *
Tape Cut-Off Knife	Inspect at 250 hours. Replace when dull, broken teeth, or poor cutting.	250 hours. 3M Natural Cleaner.	250 hours. 3M 5-Way Penetrant.	Every 120,000 cycles
Knife Oiler Pad	Inspect at 250 hours. Replace when worn, or won't hold sufficient oil.	N.A.	250 hours. 3M 5-Way Penetrant.	Every 120,000 cycles.
Rollers and Shafts	Inspect at 250 hours. Replace as needed.	250 hours. 3M Natural Cleaner.	250 hours. 3M 5-Way Penetrant.	Every 120,000 cycles.
* Based on an average of 8 cartons/minute. (480 cartons/hour x 250 hours = 120,000 cycles)				

### 8-4-2. Infeed Assembly

The following table provides recommendations for inspecting and replacing parts, and cleaning and lubricating the infeed assembly.

Taping Head	Inspect/Replace	Clean	Lubricate	Counter Cycles *
Centering Rails Closure Chain	Inspect at 250 hours. Replace as needed.	N.A.	250 hours. Multipurpose grease.	Every 120,000 cycles.
Infeed Drive Motor Sprockets and Chains	Inspect at 250 hours. Replace as needed.	N.A.	250 hours. Multipurpose grease.	Every 120,000 cycles.
Infeed Roller Sprockets and Shafts	Inspect at 250 hours. Replace as needed.	N.A.	250 hours. Multipurpose grease.	Every 120,000 cycles.
* Based on an average of 8 cartons/minute. (480 cartons/hour x 250 hours = 120,000 cycles)				



**8-4-3. Main Assembly**

The following table provides recommendations for inspecting and replacing parts, and cleaning and lubricating the main assembly.

<b>Main Assembly</b>	<b>Inspect/Replace</b>	<b>Clean</b>	<b>Lubricate</b>	<b>Counter Cycles *</b>
Side Drive Belts	Inspect at 250 hours. Replace when worn, or slipping on carton.	250 hours. Vacuum.	N.A.	Every 120,000 cycles.
Belt Drive Rings	Inspect at 500 hours. Replace when worn, or won't drive belts.	N.A.	N.A.	Every 240,000 cycles.
Side Belt Closure Assembly Chains, Shafts, and Bushings	Inspect at 250 hours. Replace as needed.	N.A.	250 hours. Multipurpose grease.	Every 120,000 cycles.
Side Belt Drive Assembly Chains	Inspect at 250 hours. Replace as needed.	N.A.	250 hours. Multipurpose grease.	Every 120,000 cycles.
Column Assembly Column Guides	Inspect at 250 hours. Replace as needed.	N.A.	250 hours. Multipurpose grease.	Every 120,000 cycles.
Top Flap Compression Roller Bushings	Inspect at 250 hours. Replace as needed.	N.A.	250 hours. 3M 5-Way Penetrant.	Every 120,000 cycles.
Side Drive Belt Rails	Inspect at 250 hours.	N.A.	250 hours. Multipurpose grease.	Every 120,000 cycles.
Main Air Pressure Regulator/Filter	Inspect as needed. Replace as needed.	Drain. Do not allow water to go above filter element. Clean as needed.	N.A.	N.A.

\* Based on an average of 8 cartons/minute. (480 cartons/hour x 250 hours = 120,000 cycles)  
(480 cartons/hour x 500 hours = 240,000 cycles)

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